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MENTAL LIFE

"حیاتِ ذہنی"

BY THE SAME AUTHOR

ETHICAL PROBLEMS:
AN INTRODUCTION TO ETHICS FOR HOSPITAL NURSES
AND SOCIAL WORKERS

MENTAL LIFE

AN INTRODUCTION TO PSYCHOLOGY

BY

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WITH A PLATE AND 7 DIAGRAMS

THIRD EDITION, REVISED

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PREFACE

THIS introduction to psychology was framed as a course of lectures for the students in the Social Studies Department of Bedford College. Its aim is to outline the chief features of mental life and development and, in particular, to give such a sketch of the springs of human behaviour as may serve as a basis for the intelligent study of society.

I am indebted to Mr. W. Legge Symes, Professor of Physiology in the Royal Veterinary College, London, for help and advice in the preparation of Chapter III, and to Miss D. Preddy for the drawings of Figures 6, 7, and 8. Acknowledgments are made in the list of illustrations to the publishers by whose permission Figures 1, 2, 3, 4, and 5 are reproduced.

I should like here to express my appreciation of the courtesy and generosity of the authors who have allowed me to reproduce extracts from their works, viz. Sir Edmund Gosse, Mr. Rudyard Kipling, and Miss M. Washburn Shinn.

BEATRICE EDGELL

April 1926

PREFACE TO THE THIRD EDITION

IN revising the text for this edition I have tried, as far as is possible without extensive rewriting, to make clearer passages that have been found difficult by students; in particular the one dealing with the distinction between "tied" and "free" ideas. I have added a note to Chapter XIV to exemplify the cases of conflict between impulses or desires wherein an issue is either falsified in subsequent reflection or is evaded at the moment of conflict.

BEATRICE EDGELL

November 1931

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INTRODUCTION

THE SUBJECT-MATTER OF PSYCHOLOGY AND ITS PLACE IN A CLASSIFICATION OF SCIENCES

PSYCHOLOGY may be described as the science of mental life, and such a description will serve to indicate the place which psychology should occupy in any classification of the Sciences. It is a biological study, making use of the biological conceptions, growth, development, function. Like every other science, psychology has before it the task of describing, classifying, and explaining the facts with which it deals. In comparison with other sciences it presents a less definite body of doctrine; its facts are more difficult to describe and classify; its explanatory hypotheses more tentative and less susceptible of proof or disproof. Psychology leads the student directly to the ultimate problems of human experience: the problems of knowledge, of the nature of reality, of the nature of value. In its relation to these problems psychology is an integral part of philosophy. As a biological study of mental life it has close relation with physiology, the study of the life of the body, and this is a point of great importance for the development of psychological knowledge.

If the description of psychology as "the study of *mental life*" be changed to "the study of the life of the soul or the life of mind," psychology would be committed at once to the metaphysical problem of the nature of the soul or the mind. Is it a substance? And if so, what is its relation to other substances? But however directly psychology may lead to such a problem, as a science it is not itself concerned with this, any more than physics as a science can be said to be concerned with the ultimate nature of matter, or with the relation of matter to spirit. Every science has its base, or shall one say, its summit, in metaphysics. The difference between

psychology and such a science as zoology is that psychology leads to philosophical problems more immediately and more insistently. In psychology there is not, as in other sciences, a large self-contained body of doctrine which can be readily distinguished and advantageously cut off from those ultimate implications which belong to philosophy. Herein lies both the difficulty and the fascination of psychology.

PRESENT-DAY INTEREST IN PSYCHOLOGY

Interest in psychology has never been greater than it is at the present time. Human beings have never been so interested in themselves and in one another. Pope declared that " the proper study of mankind is man," yet the poet of Twickenham was only interested in the study of the manners and politics of his time and his class. The great dramatists, the novelists, and the poets of all time have exemplified the truth of the axiom, but in no previous period has the plain man so conspicuously borne tribute to its truth as now. The eagerness with which newspapers are read by all classes of society, the interest in the personal paragraph and the illustrated interview, the demand for novels, the attendance at theatres and cinemas where some drama is enacted, testify to the interest of mankind in the mental life of others, whether it be that of actual or of fictitious personages. The causes for such interest are many. We may single out the steady rise of democracy, the belief that one man is as good as another, the variety of the ways wherein a man can win notoriety and of the channels whereby his achievements can be brought to the notice of his fellows, the spread of information by the Press, and lastly, the increasing interdependence of community upon community, class upon class for the means of life and subsistence.

One important aspect of this interest is the growing realization of the importance of understanding the human element which is involved in the great undertakings of modern life and society.

The social reformer in his schemes for improved legislation or town planning seeks to comprehend in terms of human

experience the effects for which he strives and their relation to present conditions. How and why should this or that be resented? How and why may this or that "desirable" end be made an object of *actual* desire? The trader realizes that he must understand the public for whom he caters; their needs, how to attract their attention, how to increase the circle of purchasers. He must know how to advertise, how to buy, how to sell; all of which involve a knowledge of human beings. The employer of labour finds that he must know not only how to handle men in the sense of how to secure their goodwill and service, but how to adapt work to their capacities and to secure the best working conditions for them. He must consider fatigue and economy of movement, boredom and interest. The teacher has long realized that he must study the nature of the taught if he is to succeed in his art, but this truth is coming home to him at the present time with increasing emphasis and new meaning. The doctor has learnt anew that often he can only minister to the body by studying the mind of his patient. The old family physician who was the family friend was perhaps hardly conscious of the extent to which his knowledge of the social life and environment of his patient aided him in his medical treatment. He ministered by his visits, conversational advice, and attitude of mind, as well as by his physic. Such ministry, which was often undesigned and sometimes unconscious, is now the intentional aim of the specialist and the occasion for a special technique.

It is inevitable that in seeking to know about others man should come to know about himself, for he only realizes the lives of others in terms of his own experience. But a man seeks also direct self-knowledge. He wants to know what his abilities are, where he can succeed, why he fails here or is hampered there; he wants to know what others think of him, where he stands. Self-study may be undertaken by a man with the deliberate intention of directing his own life by such knowledge in obedience to the old Greek moral maxim, "Know thyself." It may find its motives in commercial expediency, or, again, in a love of culture; but whatever the motive, in its *modus operandi* it is psychological.

These, then, are various directions of interest which have served to bring psychology into prominence at the present time. Men have turned to general psychology to find what are the main facts known with reference to the mental life of man, to obtain a point of view from which to study human life and a scheme for grouping mental phenomena. There has been a systematic endeavour to work out the applications of such knowledge: to apply psychology to education, sociology, industry, medicine, self-culture. Such applications cannot fail to enrich the general doctrine. Every application of a principle reflects back upon the main body of theory, confirming it, or modifying it, or suggesting a new hypothesis. This has already been the case in a very marked degree with the application of psychology to medicine.

If one says that psychology is becoming *popular* one can perhaps bring out the advantages and the dangers of the present position of the subject. The most obvious advantage is the probable advance in our knowledge of psychological facts. With increase of interest and enthusiasm will come extension of study and new material, confirmation or refutation of old theories and a greater co-ordination and systematization of data. Further, psychology will come into closer relation with other departments of knowledge. The gain will be mutual in each case; but perhaps the chief gain to psychology will be a gain in stability and weight.

The dangers are, let us hope, transitory. It is inevitable that many will "take up" psychology, "patronize" the subject, while possessing only a superficial knowledge of its principles. This can happen in psychology more easily than in any other branch of learning. It is partly due to what some people regard as the great defect of psychology, viz. the lack of a scientific nomenclature and a terminology. The possession of a scientific nomenclature and terminology is a weapon of defence against the vulgar. The students of a subject possessing such a nomenclature and terminology are like the members of a secret society having their passwords and shibboleths. The person without technical knowledge cannot understand the mystic terms and names used by the initiated, and cannot pretend to apply them. Psychology,

just because it is the science of mental life, uses for its facts the names which are part of the common language of the people: Sensation, Feeling, Thought, Desire, Impulse. These are all names with a meaning in common speech, names which every one can use glibly. It is the task of psychology to endeavour to describe precisely and to differentiate between the facts which such names are used to denote. Every one can talk psychology, so far as names go, but hardly two psychologists will dare to use these common terms to one another without preliminary explanation as to what each means by them. Hence the common criticism of the listener at a psychological discussion: it is all about words. It has been suggested that a new precise terminology and nomenclature should be laid down. This would have advantages and would safeguard psychology from the loose talk of the ignorant, but it would not be without a corresponding loss. The subject-matter of psychology is the life and thought of human beings, and to depart from the words of common speech whereby that life and thought is denoted would give a certain artificiality to the study. Standardization in the psychological use of current terms, rather than the invention of new terms, seems the desirable line of progress.

But to return to the dangers. Superficiality, then, and a certain amount of pseudo-psychology is to be expected. The attempts to apply such knowledge would be disastrous; quackery of all sorts might pose as applied psychology. Its necessary failure might create a wave of disgust sweeping away the present interest of the public mind in anything termed psychological. Somewhat different is the danger which might come from the exploitation of psychology. The general interest in psychology may tempt men to pervert the application of genuine psychological principles to their own ends and financial advantage. A fraudulent and illegitimate use of psychology knowledge would destroy public confidence and hinder the pursuit of knowledge for its own sake. It is fortunate that this danger is most likely to arise within the purview of the faculty which is best able to detect it, viz. the faculty of medicine.

Whether it be popular or unpopular the study of psychology

is well worth while. It increases and gives point to the interest in, and knowledge of, human life. It gives the observer an indication of what to work for, a coign of vantage from which to observe, a plan by which to interpret what he observes, and a knowledge of some of the rules of the game. But the student must not expect too much. Knowledge of what can be seen will not suffice to give eyes to see, and knowledge of the rules of the game will not make a player. It is well to bear this in mind when we meet the man or woman well learned in psychology but unable to apply that knowledge effectively either to their own lives or to the lives of others. It is then that we are tempted to say, "Whatever is the good of all this psychology?" It is perhaps even more necessary to remember the caution when we meet with the "good" teacher or successful advertiser, the one knowing nothing of child psychology, the other, never having heard of the psychology of advertisement. Both in reality possess and act on psychological principles, but they have never separated principle from practice, or theorized on what they do and why they do it. Yet we must recognize that, could they do so, their efficiency would be increased, for their vision would be wider and their procedure more discerning.

MENTAL LIFE

CHAPTER I

MENTAL LIFE

THE DEFINITION OF PSYCHOLOGY

IT is difficult to find a satisfactory definition of Psychology, but we will define it as the science of mental life.

We will begin by considering a human being as an animal in a world of things and other animals. If we watch a human being in his relation to this world we see that he is always responding to his environment. The gardener mowing the lawn responds to his environment. He steers his machine with reference to the edge of the lawn or to the last track which he himself made; he stops to pick up a stone that he sees in the path of the machine; he pushes harder at this place or pulls on the machine at that in response to the slope of the lawn; he rests, and mops his forehead in response to the heat; he oils or adjusts his machine in response to its sound or the resistance it offers to his touch. In watching all this we are studying the behaviour of the man, and some people would define psychology as *thc study of behaviour*. We can observe all the responses that the human body makes to the features in the world which act upon the body. We can do this as mere spectators, or if we are doctors we can study more than the outward movements or overt behaviour of a human being; these movements become indices to the inner events of the body. The behaviour of the gardener tells a story to the doctor, he infers from the frequent halts on an incline that there is heart trouble, or by watching the man's gait he sees the signs of a stiff joint. In his laboratory the physiologist can study the behaviour of the body at close quarters, investigate the response of this part or that to this

or that stimulus. If we are practical everyday persons we are not primarily interested in the gardener as a delicate and complicated piece of machinery which responds to lights, frictions, heat, or sound, but in the gardener as seeing this or that, hearing, touching, being affected by the heat, wearied by his efforts. His behaviour is interesting because it reveals what his environment means to him and how it affects him. In describing his behaviour to another person we should imply this. We should use some such expressions as: "He sees that he is not keeping in line; he has noticed the stone; he is hot; he finds it hard work uphill." We notice the behaviour, we may even, like the doctor, guess at inner bodily events, but we do so in order to interpret them into terms of the gardener's experience, to realize how he finds the world and what he is making of it. In other words, it is the mental life of the human being that interests us when we as psychologists study his behaviour. Behaviour gives us a clue to the "meanings" and the "value" which the environment has for an individual, a clue to his world, and in this sense all psychologists are "Behaviourists."[1] To take a further illustration, as psychologists we may study the behaviour of a fellow-passenger in a railway train. We may notice his clothes—these represent past responses to environment; we may infer wealth or poverty, or more interesting personal characteristics as to the tastes of the wearer, and of his capacity for making the best of what is worn. Then there are the possessions of the passenger, the parcels, responses to environmental claims which may indicate the occupation or interest of the person. His newspaper may indicate his political leanings. If we observe his behaviour when he reads it we may discover what interests him and what not. His responses to his fellow-passengers, to the incidents of the journey, to the scenery, or to life of the stations *en route*—each item of behaviour will furnish data showing the meanings and values which the world yields to our fellow-voyager.

[1] The term "Behaviourism" is used as the name of a special school of American writers who restrict psychology to the study of the responses of an organism to its environment. They disregard the experience or mental life of the responsive organism. The school arose from the study of Animal Psychology and relies solely on the Objective method. It is reviewed in the Appendix.

METHODS OF OBTAINING PSYCHOLOGICAL DATA

It is obvious that Psychology, however it is defined, must be interested in the body since it is through the bodily behaviour of human beings that we obtain the clue to their mental life. This study of mental life through behaviour is one of the principal methods by which the data of psychology are obtained. Like every science, psychology must be in the first place descriptive, it must describe the facts of mental life, it must further attempt to classify those facts and to bring out the laws or principles which they manifest. The method of obtaining data for psychology from the study of behaviour is the *Objective Method*. Wherever there is evidence of man's response to his environment, there the data for psychology exist. Ethnology, Sociology, History, each contributes its quota to the Objective Method. Customs, rites, ceremonies, laws, these are records of man's responses to his environment. Man's work and his play, his art and his language are forms of behaviour to be studied by the Objective Method for the sake of the light they shed upon mental life.

But psychology also obtains its data by another method, the method of *Introspection* or the *Subjective Method*. The only direct knowledge we have of experience is the knowledge we each one of us have of our own mental life. From observing the behaviour of the gardener we may know that he is seeing the stone on the path of the mowing machine, that he is stopping his machine in order to remove it, but to know this we have to put ourselves in his place mentally. These experiences which we attribute to the gardener could be our own. Were we in very truth engaged in mowing, then we should actually experience the sight of the stone, have the thought, "It will injure the machine; I must stop." We should experience the annoyance of the pause in the straight run. Only our own mental life can thus come before us as direct datum, and herein lies one of the peculiarities of psychology. First-hand knowledge of the facts of mental life is restricted to the line of our own experience. It may seem as if this limitation makes scientific psychological knowledge impossible; how can knowledge of general value be

reached on the thin line of an individual's personal experiences? Without the Objective Method the Subjective Method can accomplish very little. The two methods render each other mutual support. The study of our own mental life, which we term introspection, would never have gained the articulate distinctness of a scientific method if the rough consciousness of inner experiences had not served as the basis for intercourse and co-operation with others, and if their behaviour had not confirmed the teachings of the so-called "inner sense." Interpretation of the behaviour of others involves introspective knowledge, while observation of the behaviour of others in its turn heightens the introspective ability of the observer. Much of the information gained by introspection is due to "retrospection," reflection on experience after the experience itself is past. When some interesting episode of life occurs, e.g. the receipt of good news, one is too intent in living through the experience to be capable of noting its features for purposes of study; but subsequently one may recall the episode and analyse the whole in order to discriminate the several features. We must bear in mind the fact that we may study our own mental life not only introspectively but also by the objective method. We can notice our own behaviour—our gestures, posture, words—and take these side by side with the awareness given introspectively. Such comparison may teach us that neither method is a royal road to truth. We may observe that we speak bold words and strike an attitude of defiance when inwardly we fear, or on another occasion we may be conscious only of an end to be achieved and hear a quaver in our voice or see a tremble in our hands with surprise; they testify to a fear of which we have no consciousness. Both methods of obtaining data are necessary for building up the body of knowledge that is psychology.

FIELDS OF PSYCHOLOGICAL STUDY

We have so far assumed that the mental life studied by psychology is human life, but this is not a necessary assumption. We began by considering the human being as an animal

in a world of things and animals. Instead of the human being we could consider any other animal and study its responses to its environment, its behaviour. This is the field of Animal Psychology. Here we have only the Objective Method to rely upon. The interpretation of animal behaviour in terms of mental experience is very difficult. The greater the difference between the animal studied and the human being, the greater is the difficulty of interpreting its behaviour on the lines of human behaviour. We all find it easy to read into the action of our dog the ideas and feelings which we should attribute to a human being. The dog has done wrong, he slinks past his master; we say, "He knows he has done wrong; he is ashamed of himself." Yet is this so? Ought we not first to ask does a dog have a world in which "right" and "wrong" are meanings; does he experience shame? It is easy to commit the psychologist's special fallacy of reading into behaviour the psychologist's own private opinions and beliefs. In estimating the resemblance of an animal's mental life to that of a human being we rely on the resemblance in bodily form, in particular, on resemblance in the nervous system. This is the best guide that we possess, but possibly it is an unsatisfactory one. It seems clear that the mental life of the higher mammals should be nearer to our own than that of the insects.

Another field of psychology is that of Child Psychology. The study of children is perhaps only one degree less difficult than the study of animals. Here also we have to rely chiefly upon the Objective Method. The child can give but little expression to his inner experience in terms of speech. He cannot, like the adult, take another into his confidence and lay bare his soul in words. He is not yet master of this tool of expression. He cannot readily pass along the bridge thrown from mind to mind. Here, as in the case of animals, the psychologist must interpret behaviour. He must study actions, postures, expressions of face, words, and deeds.

Psychology may take for its study the life of man, but the life of man in a primitive society rather than the mental life of the average civilized adult as he is to-day. Such study has its own special difficulties, but is rich in information and of

great value when brought into relation with the main body of psychological doctrine. In distinction from the latter as General Psychology, this field is termed Comparative Psychology.

Study of the mental life of those who in their behaviour differ from the majority of their fellows constitutes that branch of psychology which is termed Abnormal Psychology ; here we have the study of pathological cases and the study of those cases which though unusual are not morbid, the sub-normal and the super-normal.

Psychology may also be descriptively labelled according to the manner in which it sets forth the facts of experience and endeavours to explain them. The facts of human mental life may be set forth in their relation to the simpler facts of animal experience from which they may be supposed to have been evolved. The development of mental life may be traced from its beginnings in the mental experience of the child to its maturity in the adult consciousness. This is termed *Genetic* Psychology. Disregarding development, the psychologist may look for the general principles embodied in various forms of experience and seek to set out these principles as a connected system. This was the aim of what was termed *Analytic* Psychology. Unfortunately, the term is now more often applied to the psychology which employs a special technique for eliciting psychological data. This is the use of the term by those writers who follow the method introduced by Professor Jung of Zürich in his clinical work with neurotic patients.

PROGRAMME OF CHAPTERS

After this general description of the subject-matter of psychology and of the different fields of study and of the methods of exposition, it is time to come to the particular question, the scope of this book. We are interested in the study of the mental life of the civilized individual, and in this individual as a member of society. We need to study the behaviour of the individual, to interpret his world of values and meaning, to understand his reactions to his environment. We shall follow the genetic method, endeavouring to see the

meanings and values which are primitive for the human being and to trace out how he acquires new meanings and values, how he learns from experience and builds up his world.

In order to carry out this programme we must consider the individual in relation to his environment, try to ascertain the distinctive features of mental life, and obtain some working idea of the functions of the nervous system (Chapters II and III). To understand the native endowment of the individual we must learn what we can from animal and child psychology, study the nature of sensations and the innate tendencies which give to the human being the primitive meanings and values of his world (Chapters IV, V, and VI).

We must recognize the properties of mental life in virtue of which man is able to learn by experience. We must see how his responses become on the one hand more and more automatic and on the other more and more adaptive and selective as the environment acquires new meanings and new values. We shall learn of the development of a world of ideas and ideals. In this connexion we shall touch on the possible conflicts between primitive and acquired values and consider the problems of thought and conduct which beset the period of adolescence (Chapters VII, VIII, IX, X, and XI).

We must treat of the organization of knowledge and of the formation of the individual's permanent interests and sentiments, and of the manifestation of these in will and character (Chapters XII, XIII, XIV and XV).

Underlying any genetic treatment is the problem of causation. How is development determined? What shapes its progress? This book implies a belief in immanent causation. It recognizes that development is shaped by environment, both physical and social, but it finds in mental life itself an efficient cause of development.

With this confession of faith we will bring this chapter to a close.

EXERCISES

PREPARATION. AN ILLUSTRATION OF THE DISTINCTION BETWEEN THE OBJECTIVE AND SUBJECTIVE METHODS

Let us imagine that we are in charge of a group of children ten to twelve years of age in a Home for orphans and for children removed from homes of evil repute. A new child is put under our charge and we are presented with her case history. We learn, let us suppose, that the child is the only child of mixed parentage, Italian and English, parents both dead; that the home has been squalid, school attendance very irregular, and that the child is marked as backward. The medical report of the Home doctor shows the child to be ill nourished, to have bad teeth, diseased tonsils and adenoids, but to be otherwise healthy. Mental tests, given on entrance to the Home, rank the child as of normal intelligence (I. Q. 98).[1] All this information may be of value to us in our knowledge of the child A.B. It furnishes us with some psychological data by the objective method. So far it is the observation of other people which has given us any basis to go upon in our dealings with A.B. But we now become observers on our own account. We note her behaviour with the other children, at play, in class, in the dormitory, note her demeanour at meals, her attitude towards us and to other officials. We soon add extensively to our psychological knowledge. We attribute various qualities to A.B. We judge that she is quick tempered and quarrelsome with girls of her group, that she is noisy, untidy, and careless in her work, that she has an offhand manner when spoken to, though she is not impertinent. Of her likes and dislikes we note that she appears to take pleasure in blending colours in her raffia work, even when she is careless in the weaving of the material. She has no interest in her lessons and hates writing and arithmetic. When a visitor to the Home brought a dog with him she seemed overcome with terror, yet she proved no coward when taken to the doctor and dentist. In all this one is outside A.B., gradually gathering up what information one can of her outlook on her world of people and things. The more we observe, the more able we are to check our observations one

[1] The I. Q. or Intelligence Quotient expresses in terms of 100 the result of dividing an individual's mental age (found from test scores) by his chronological age. If the individual is normal, his I. Q. will approximate to 100. If he is in advance of his age, it will be more than 100. If he is retarded it will be less. An I. Q. under 70 points to mental deficiency.

against the other, and to confirm or reject our opinions about her. Only A.B. really knows what she thinks and feels about it all, and even she may only know very vaguely. She may know that the other girls make her " mad " when they call her a foreigner and say she can't talk English. She knows she can, but her missing teeth prevent her speaking plainly. She remembers the horrible dog that ran after her when she was only six, staggering home with Sunday's dinner from the bakehouse. She may know that she loves bright colours and longs for gay clothes, that her fingers turn to thumbs when she is tired. In so far as she knows these things, she is in possession of psychological data gained by the subjective method. If we could look into her experience and know these and other facts, then with this knowledge and that gained by our own observation we should be able to understand her personality and character. A novelist describing his characters often assumes just such knowledge to himself, but as plain men and women we have to be content with what we can learn of another's mind by the objective method. There is, however, the bridge of language between us and A.B. If she comes to trust us she may confide in us some of her introspective knowledge. We may learn from her what occasions the wounded self-pride and leads to the quarrels, we may learn about the dinner and the dog and the terror which overcomes her now. She may throw light on her past life which will illumine all the inwardness of her case history. If she can do this, objective and subjective methods will play into each other's hands. Without the questions and guidance which we can supply from our information and from our own observation of her behaviour A.B. might be quite unable to elicit and express the facts of her own inner consciousness, while without A.B.'s own revelations we might never look in the directions where we should find the clue to her conduct and character.

1. Consider how far each of the following may take up the attitude of a psychologist in his observations.

(*a*) A doctor paying a professional visit to a man who is fasting twenty days to win a wager.
(*b*) A small boy intently watching a taxi-driver removing a wheel with a burst tyre and preparing to adjust his spare wheel.
(*c*) An artist looking at a street scene which he is sketching.
(*d*) An artist studying his model during a sitting for a portrait.

(*e*) An invigilator watching a class writing an examination test.

2. Do you think you could learn more about an unknown person from an examination of the rooms in which he lives or from half-an-hour's talk with him during a casual meeting ?

3. In the following passage distinguish between what George Eliot tells us of Maggie Tulliver from the standpoint of Introspection and what she tells us from the standpoint of the Objective Method :

("Mill on the Floss." George Eliot. Ch. 7.)

"'Well, my dears,' said Aunt Pullet, in a compassionate voice, 'you grow wonderfully fast. I doubt they'll outgrow their strength,' she added, looking over their heads, with a melancholy expression, at their mother. 'I think the gell has too much hair. I'd have it thinned and cut shorter, sister, if I was you : it isn't good for her health. It's that as makes her skin so brown, I shoun't wonder. Don't you think so, sister Deane ?'

"'I can't say, I'm sure, sister,' said Mrs. Deane, shutting her lips close again, and looking at Maggie with a critical eye.

"'No, no,' said Mr. Tulliver, 'the child's healthy enough—there's nothing ails her. There's red wheat as well as white, for that matter, and some like the dark grain best. But it 'ud be as well if Bessy 'ud have the child's hair cut, so as it 'ud lie smooth.'

"A dreadful resolve was gathering in Maggie's breast. . . . .

'Maggie,' said Mrs. Tulliver, beckoning Maggie to her, and whispering in her ear. 'Go and get your hair brushed, do for shame. I told you not to come in without going to Martha first ; you know I did.'

"'Tom, come out with me,' whispered Maggie, pulling his sleeve as she passed him ; and Tom followed willingly enough.

"'Come upstairs with me, Tom,' she whispered when they were outside the door, 'there's something I want to do before dinner.'

"'There's no time to play at anything before dinner,' said Tom, whose imagination was impatient of any intermediate prospect.

"'O yes, there is time for this—*do* come, Tom.'

"Tom followed Maggie upstairs into her mother's room, and saw her go at once to a drawer, from which she took out a large pair of scissors. 'What are they for, Maggie ?' said Tom, feeling his curiosity awakened. Maggie answered by seizing her front locks and cutting them straight across the middle of her forehead.

"'O, my buttons, Maggie, you'll catch it !' exclaimed Tom ; 'you'd better not cut any more off.'

"Snip! went the great scissors again while Tom was speaking; and he couldn't help feeling it was rather good fun: Maggie would look so queer.

"'Here, Tom, cut it behind for me,' said Maggie, excited by her own daring, and anxious to finish the deed.

"'You'll catch it, you know,' said Tom, nodding his head in an admonitory manner, and hesitating a little as he took the scissors.

"'Never mind—make haste!' said Maggie, giving a little stamp with her foot. Her cheeks were quite flushed. . . .

"'O Maggie,' said Tom, jumping round her, and slapping his knees as he laughed. 'O my buttons, what a queer thing you look! Look at yourself in the glass—you look like the idiot we throw our nut-shells to at school.' Maggie felt an unexpected pang. She had thought beforehand chiefly of her own deliverance from her teasing hair and teasing remarks about it, and something also of the triumph she should have over her mother and her aunts by this very decided course of action: she didn't want her hair to look pretty—that was out of the question—she only wanted people to think her a clever little girl, and not find fault with her. But now, when Tom began to laugh at her, and say she was like the idiot, the affair had quite a new aspect. She looked in the glass, and still Tom laughed and clapped his hands, and Maggie's flushed cheeks began to pale, and her lips to tremble a little.

"'O Maggie, you'll have to go down to dinner directly,' said Tom. 'O my!'

"'Don't laugh at me, Tom,' said Maggie in a passionate tone with an outburst of angry tears, stamping, and giving him a push.

"'Now, then, spitfire!' said Tom. 'What did you cut it off for, then? I shall go down: I can smell the dinner going in.'

"He hurried downstairs and left poor Maggie to that bitter sense of the irrevocable which was almost an everyday experience of her small soul."

Anna Russell
1942 1943

CHAPTER II

ANALYSIS OF MENTAL LIFE OR EXPERIENCE

AN analysis of everyday experience in order to arrive at broad headings under which the facts of mental life may be classified is a helpful preliminary in our programme.

Dr. James Ward [1] tells us that the elementary facts of experience cannot be expressed in less than three propositions: "I feel somehow," "I know something," "I do something." Whether we analyse our own life or study the lives of others we seem to recognize these three distinct aspects of experience. We term them Feeling, Cognition, Conation, i.e. being affected, knowing, striving. If we consider the relation of man to his environment the same aspects strike us. Man is affected *by*, is aware *of*, and acts *upon* his environment. We may regard these three, then, as the main headings of classification in any description of an episode of mental life.

It would be safe to say that life is never exclusively confined to one mode of conscious experience. Life may be compared to a cord woven of the three strands in all their variety and complexity. Theoretically, the strands are recognizably different one from the other, but none the less in concrete experience it is often difficult to detect where feeling blends with knowing or where conation begins and feeling ends. An example may make the nature of the three strands clearer. Notice such a simple moment in life as that in which one is taking one's ticket at a railway booking office on starting for a holiday. There is awareness or knowledge of the place to which the ticket is to be taken, awareness of speaking the name, awareness of the clerk, awareness of the money in readiness in one's hand. Some of these points are prominently "in mind," some dimly apprehended. There will be some sort of feeling—say, pleasure—at being actually

[1] "Psychological Principles," page 34.

there in front of the window after a worrying morning of preparation. There is a striving to get on with the preliminaries of the actual journey itself, to find out the right platform, to meet the porter with the luggage. All the aspects of mental life may be recognizable in the single moment we choose for analysis, viz. that of asking for the ticket to X.

COGNITION, FEELING, AND CONATION

We will consider these three categories a little more in detail. When we speak of **cognition** we mean any kind of awareness. There is cognition when there is the *perception* of any person or any material thing, as, for example, the perception of a friend, a chair, or a table; there is cognition when there is *memory* of any object experienced in the past—the name of an old schoolfellow, the appearance of the old schoolhouse; there is cognition in *fancying* some imaginary situation—the appearance of the week-end cottage we dream of building some day; there is cognition in being *aware of some problem, of some conclusion or decision and of the ground for it.* In all these cases whatever we are aware of, be it a material thing or what we may roughly term an idea, is termed the *object* of our awareness. This word "object" is correlate to the word "subject." That which is known is an object for the person who is aware, the knowing subject. Whenever there is awareness of an object, experience has *meaning*.

Feeling or **Affection** is a category which it is more difficult to mark out. In common speech the term "feeling" is used for very different varieties of experience, and psychology cannot follow common usage here. This is one of those cases where, as we said in the introduction, psychology needs a more precise terminology. Psychology uses the term Feeling to denote the experience of being affected pleasantly or unpleasantly by an object; or, again, of experiencing an emotion. The sight of the booking-office clerk at the other end of his office engaged in conversation with a friend would affect a hurried passenger unpleasantly. This *affection* or

feeling experience is not to be identified with the " awareness " of the clerk at the other end of his office talking to a friend. Were our traveller a man of leisure and somewhat of a philosopher, he might feel pleased at seeing such social intercourse. To take another example, the man in a queue at a booking office may lose his temper when the man in front drops his dispatch case and scatters the contents at the feet of the impatient oncomer. This affection will not occur in a spectator who witnesses the same episode. He, on the contrary, may find it highly amusing. All the emotions, such as joy, sorrow, anger, fear, envy, are to be regarded as qualitatively different from one another *qua* Feeling or Affection, while the simpler experiences of being pleased and " unpleased " yield us a range of experiences differing in degrees of intensity, from " intensely " pleased to " slightly " pleased ; from " intensely " pained to " faintly " unpleased ; the scale of pleasure and of pain. Perhaps we have here qualitative differences also, but we will disregard this possibility.

If we contrast this use of the term Feeling or Affection with the use of these words in everyday speech the meaning of the term will become clearer. In everyday speech the term affection denotes some degree of friendship or of love—it is indeed used for a particular kind of sentiment ; whereas we need the term in psychology as a collective or class name for all the various ways in which an object may affect us. Again, in everyday speech feeling is used for experiences which psychology would label as belonging to cognition, e.g. sensations of touch. We say this surface has a rough *feeling* this cloth *feels* smooth. Here the statement refers to what we are aware of, viz. the character of the cloth and not the way in which this character affects us. The roughness may be pleasant or it may be unpleasant. Indeed, if we say, " This has a nasty feeling," we mean that we are aware of some contact and feel this contact as unpleasant. The unpleasantness is distinguishable from the character of the contact, which may be described as sticky, cold, wet, or slimy. We are aware of this character, but the quality coldness, stickiness, etc., is not the same as the unpleasantness which any such character may possess. In common speech we use the word

feeling for a whole group of sensations, viz. the sensations which we experience from our own bodily condition. We say, " I feel giddy," or " I have a feeling of faintness." The giddiness or faintness may be very unpleasant, but this is not what we are expressing. Giddiness is one set of sensations, faintness another. We wish to express that we are aware of experiencing this or that set of sensations. If someone says, " Do you feel faint ? " we may be able to say, " No, not faint, only dizzy," i.e. to indicate that we are aware of this and not that set of organic experiences. So again when we speak of a " feeling " of hunger or of thirst it is not either the pleasantness or unpleasantness of the experience that we mean, but the quality of the organic sensations characterized as of hunger or of thirst. Even more confusing, perhaps, is our use of the words feeling for states of belief and doubt. " I feel certain " or " I feel doubtful " expresses the condition of the speaker in regard to belief, but it in no way indicates whether he is experiencing a pleasant or an unpleasant state. Certainty may be pleasant, and doubt may be unpleasant, but such pleasantness or unpleasantness is not the feature which constitutes the one an experience of certainty and the other one of doubt.

We need perhaps to add a special warning about the words " pains " and " pleasures." Pain is used generically as a class name for all experiences which are displeasing or painful. It is used more particularly for bodily experiences, and is often used in the plural, " pains." A sting, a burn, a bruise, inflammation, toothache—these are all pains. Each, however, has its own characteristic—the stab of the one, the smart of the other, the dull ache, the rhythmical throb, the soreness : these are the features of which we are aware and by means of which we recognize the nature of our malady ; but the painfulness of these experiences is something over and above the features which we can analytically detect and scrutinize. It is in virtue of the feeling-tone or of their affective value that they are classed as " pains." Similarly we are wont to group together under the word Pleasures a very motley crew of experiences. A visit to the theatre, a picnic, the visit to a friend, are each and all pleasures. They

are such in virtue of the experience of pleasantness which is experienced whenever they are vouchsafed to us. It is the pleasantness which is feeling, nothing more. The pleasantness of the " pleasures of the table " is a feeling, but not the sights, smells, and titillation of the palate which characterize that pleasure and differentiate it from, say, the pleasure of dozing before the fire. *Qua* unpleasant all pains are alike, *qua* pleasant all pleasures are alike ; but as specific pains and pleasures they are alike in naught else. It has often been debated whether there is a neutral feeling experience which is neither pleasant nor unpleasant. There is no reliable evidence for the presence of such, but it is a point which can only be judged by experiment and by the psychologist who is skilled in introspection.

The last category of experience, **Conation,** includes all forms of striving or endeavour. It is the experience of being active, pressing forward from the present experience towards or away from some coming moment. For example, the experience of striving to recall some forgotten name is conation ; or, again, that of resolving to make a fresh start on some neglected piece of work, or striving to hear what someone is saying. It is the experience of being mentally active, but it must not be confused with the experience of the bodily activity which carries out the striving. In the cases cited it is not the wrinkling of the brows or covering of the eyes in trying to recall, it is not the taking out from a drawer the neglected piece of work, nor is it the tense attitude of listening : these are bodily experiences of which we are aware, but they are not the conation itself. There can be conation when there is bodily quiescence so far as any limb movement is concerned. The invalid in bed, unable to move, who longs to be up and about, is experiencing conation by his longing to rise ; he is mentally active, however still he may lie. The thinker in his chair, who remains motionless, whose face seems impassive, may be experiencing intense activity in following out a thread of argument. Figuratively speaking, he ought indeed to be booted and spurred, seated in the saddle, for he is in hot pursuit of an idea. All conation has an end, aim, or objective. The end or objective may be some change in the present

situation, or it may be maintenance of the present situation against threatened change; e.g. I may strive to fan my bonfire to greater proportions, or I may strive to prevent its spreading; in either case there is an end, and as soon as it is reached the conation is satisfied and terminates. It disappears. Conation is always a striving towards an end, but it is customary to distinguish the striving *towards* an end from the striving which is in the first instance primarily a striving *away from* what is given. The former is called *appetition*, the latter, *aversion*. A child who waits eagerly for promised chocolate is experiencing appetition, but the child who wishes to evade a dose of medicine is experiencing aversion. Each child, of course, has an end towards which he strives, but it is simpler to represent the aim of the one as something sought for, and the aim of the other, as something avoided. It is true that such avoidance may involve the pursuit of something positive—the coaxing of mother or nurse into a pliant mood, the seeking to appear quite well; but these are ends subsidiary to the principal one, viz. the avoidance of the nauseous dose.

The connexion between Feeling and Conation is very close. In each case we may say our experience is an experience of "*value*." Progress in conation is as such pleasant or agreeable, even when the end sought may be regarded as painful. The process of getting a thing over has in itself a pleasure value. The pain of the moment may obliterate it, but often the thought, "I have got so far," is one which gives a gleam of satisfaction. On the other hand, lack of progress, the experience of being thwarted, or of being disappointed, is in itself painful, even though the occasion which gives rise to the hindrance is quite pleasant. To miss a stroke in a game is a small thing, but its painfulness will be in proportion to the keenness of winning the game or of keeping up a record. Our emotions are interwoven with conation. One of the frequent occasions of anger is the thwarting of some activity e.g. the breaking of some tool essential to one's work. The depression of grief is bound up with restriction in the sphere of conative effort, while the exuberance of joy involves the extension of conation in new aims and desires.

We have described these headings of classification, cognition, feeling, and conation in subjective terms. We may now look at them from the standpoint of the objective method. How do we know when someone is aware of an object, is affected, is striving? The answer is, as we have seen, from his behaviour, including his speech. But we can look at the matter a little more nearly and make some rough generalizations. We judge of a person's cognition chiefly by his overt movement responses, but we also infer his awareness of the things in the external world from our own knowledge of the situation and of his receptors. Thus we say confidently, "He must have seen that from where he stood," or "He must have heard that." In the case of ideas and thoughts often we can only guess at them after they have been translated into deeds. This is also true of a man's conation. Facial expression, gesture, posture, or exclamation is the behaviour which seems to give us a direct and vivid clue to experience. First and foremost, it indicates feeling, particularly emotion, but it is not without significance as a clue to what a man is thinking or desiring. While the everyday spectator judges by a man's statements, his movements, and the finer indications of expression, the psychologist in his laboratory can not only obtain these indices more accurately, but he can obtain, in addition, indices to responses within the organism itself, such as pulse-rate, rate of respiration, body temperature, blood pressure. The importance of these indices will be appreciated more clearly when the structure and function of the nervous system has been studied.

THE INDIVIDUAL EXPERIENT OR THE SUBJECT

We have spoken of the subject, the individual who is aware, who feels, who strives, and we began our analysis by a quotation from Dr. Ward: "I feel somehow, I know something, I do something"; it is therefore necessary to say something of this "I," the subject. The knowing, feeling, doing which is studied by the psychologist is always the knowing, feeling, doing which is part of a continuous whole with other knowing, feeling, and doing; part of the life story of an individual.

Any single pulse in a life-story can only be understood when it is taken in relation to the story of which it is a pulse. James brings this point out forcibly when he describes the ideas which form part of a given individual's life-story as " warm " when contrasted with those belonging to a different life-story. He says, " Peter awakening in the same bed with Paul and recalling what both had in mind before they went to sleep re-identifies and appropriates the ' warm ' ideas as his, and is never tempted to confuse them with those cold and pale-appearing ones he ascribes to Paul. As well might he confound Paul's body which he only sees, with his own body, which he sees but also feels." [1] This " belonging-together-ness " constitutes personal identity or self-hood. X's knowing or feeling or doing will have features which are due to their being X's knowing or feeling or striving, and can be only understood when they are so considered. But when we have said this, we must be on our guard against treating X as if X, the subject or individual experient, were something over and above his experience.

ILLUSTRATIONS OF COGNITION, FEELING, AND CONATION.

In order to render the headings of classification clearer we may analyse the experiences described in the following passages :

(*a*) " The Cloister and the Hearth." Charles Reade. Ch. 24.

" Presently in the sea of ink there was a great fiery star close to the ground. He hailed it as he would his patron saint. ' CANDLE ! a CANDLE ! ' he shouted, and tried to run. But the dark and rugged way soon stopped that. The light was more distant than he had thought. But at last, in the very heart of the forest, he found a house, with lighted candles and loud voices in it. He looked up to see if there was a signboard. There was none. ' Not an inn after all,' said he sadly. ' No matter ; what Christian would turn a dog out into this wood to-night ? ' and with this he made for the door that led to the voices. He opened it slowly, and put his head in timidly. He drew it out abruptly, as if slapped in the face, and recoiled into the rain and darkness."

In this passage the author uses both the Objective and the

[1] James : Text-Book, page 204.

Introspective standpoint; he describes Gerard's behaviour and also puts us in possession of Gerard's inner reflections. The first moment described is his perception of a light and his recognition of it as a candle—cognition. With this knowledge comes the emotion of joy and eagerness to reach the light—feeling and conation. Gerard must hear his own cry "A candle," he must be aware of his own movements in running, but such cognition will be feeble in comparison with his awareness of the light and with his emotion. The obstacles of the path come as a check to his eagerness. He must be aware of them and unpleasantly affected thereby. The knowledge that the light is farther than he had thought brings disappointment—cognition and feeling—but the striving to reach it continues. He recognizes a house and people's voices—cognition. His desire for shelter—conation—is manifested by his behaviour: he looks for a signboard. He recognizes that the house is not an inn, and the knowledge brings sadness—cognition and feeling. But straightaway there is the comforting reflection that on such a night no one can turn him away—cognition and feeling. Out of the thought a new effort is born, though it is one which is carried over into action with timidity—conation and feeling. This is seen in his behaviour. The behaviour next recorded, the abrupt withdrawal from the door, shows that Gerard became aware of something which was painful and set up aversion. In the next paragraph the author tells us what this was: it was the stench which met his nostrils on opening the door.

(*b*) "Cranford." Gaskell. Ch. 4.

"The next day Miss Pole brought us word that Mr. Holbrook was dead. . . . Miss Matty made a strong effort to conceal her feelings—a concealment she practised even with me, for she has never alluded to Mr. Holbrook again, although the book he gave her lies with her Bible on the little table by her bedside. She did not think I heard her when she asked the little milliner of Cranford to make her caps something like the Honourable Mrs. Jamieson's, or that I noticed the reply—

"'But she wears widows' caps, ma'am?'

"'Oh? I only meant something in that style; not widows', of course, but rather like Mrs. Jamieson's.'

This effort at concealment was the beginning of the tremulous motion of her head and hands which I have seen ever since in Miss Matty."

In this passage the author uses the Objective Method. The narrator looks on at the life which interests her. She notes the behaviour and interprets it. Nevertheless this passage as clearly as the foregoing brings out the Subject of the experience. It is only the narrator's long acquaintance with Miss Matty and her knowledge of the love-affair of long ago which enables her both to notice and to interpret aright. It is only as belonging to Miss Matty's life-story that the behaviour is significant.

The points noticed are Miss Matty's reception of the news. Her thoughts—cognition—her emotion, and the efforts at control—conation—are all inferred. The nature of the thought, the emotion, and the effort are revealed by her silence. The regard for the book and the incident at the milliner's express her memories with the tender emotions they evoke and her wish to pay Mr. Holbrook's memory the tribute which widowhood would have accorded. With this wish struggles the desire for concealment, she can go no further than "something in that style." The tremulous motion of the hands testifies to the depth of Miss Matty's emotion, to the shock experienced at the news, and to her efforts at control.

(*c*) "The Bridge-Builders." ("The Day's Work," by Rudyard Kipling.) Macmillan. Quoted by permission of the author.

"'Big flood,' said Peroo, and Findlayson nodded. It was as big a flood as he had any wish to watch. His bridge would stand what was upon her now, but not very much more; and if by any of a thousand chances there happened to be a weakness in the embankments, Mother Gunga would carry his honour to the sea with the other raffle. Worst of all, there was nothing to do except to sit still; and Findlayson sat still under his mackintosh till his helmet became pulp on his head, and his boots were over-ankle in mire. He took no count of time, for the river was marking the hours inch by inch and foot by foot, along the embankment, and he listened, numb and hungry, to the straining of the stone-boats, the hollow thunder under the piers, and the hundred noises that

make the full note of a flood. Once a dripping servant brought him food, but he could not eat; and once he thought he heard a faint toot from a locomotive across the river, and then he smiled. The bridge's failure would hurt his assistant not a little, but Hitchcock was a young man with his big work yet to do. For himself the crash meant everything—everything that made a hard life worth the living. They would say, the men of his own profession—he remembered the half-pitying things that he himself had said when Lockhart's big water-works burst and broke down in brick heaps and sludge, and Lockhart's spirit broke in him and he died. He remembered what he himself had said when the Sumao Bridge went out in the big cyclone by the sea; and most he remembered poor Hartopp's face three weeks later, when the shame had marked it. His bridge was twice the size of Hartopp's, and it carried the Findlayson truss as well as the new pier-shoe—the Findlayson bolted shoe. There were no excuses in his service. Government might listen, perhaps, but his own kind would judge him by his bridge, as that stood or fell. He went over it in his head, plate by plate, span by span, brick by brick, pier by pier, remembering, comparing, estimating, and recalculating, lest there should be any mistake; and through the long hours and through the flights of formulæ that danced and wheeled before him a cold fear would come to pinch his heart. His side of the sum was beyond question; but what man knew Mother Gunga's arithmetic? Even as he was making all sure by the multiplication-table, the river might be scooping pot-holes to the very bottom of any one of those eighty-foot piers that carried his reputation. Again a servant came to him with food, but his mouth was dry, and he could only drink and return to the decimals in his brain."

In this extract the introspective standpoint is the dominant one. The reader is placed in possession of Findlayson's inner thoughts. It is not as detached ideas that they interest the reader, but as thoughts belonging to the life-story of an individual whose work and training are here being put to the test. The subject of the experience is again prominent. The environment supplies the sights and sounds which give birth to the train of reflection, but the man's past experience is involved in his memory of what has been done on the bridge and in his reasoning out of possibilities. All his engineering knowledge is implicated in his calculations. There is the memory of incidents connected with his assistant Hitchcock

roused by the sound heard from the other bank; there is the reflection that the failure of the bridge will not injure his assistant's reputation as it will his own. His organic sensations of hunger, cold, dryness in the mouth, these are but a background for his thought; their meaning to him and their value in feeling or conation is as nought in the present crisis. It is his thoughts which alone have value; it is these which bring "cold fear to pinch his heart." The sights and sounds from the river have meaning only in terms of flood-damage to *his* bridge. What is the conation? Are we to suppose that because Findlayson sits still hour after hour there is no striving in his experience? There is the constant effort which any such experience implies—the effort to get through to the end; he is waiting on the flood. But in addition to this steady conation there is conation in the separate trains of thought. As he goes over the parts of his bridge, as he works out again the formulæ that had gone to its construction, he is striving from point to point—striving to work out estimates and to reach conclusions. There is present what later on we shall recognize as the active direction of ideas. We may contrast these trains with the stream of reminiscence; in respect to the memories of Lockhart and Hartopp, Findlayson may be passive, his only effort may be an effort to get away from such ideas, but in his recalculations there is active control of the memories which furnish the train of thought.

EXERCISES

1. Consider the experience described in the following passage and roughly analyse it, using the headings Cognition, Feeling, Conation.

"Jane Eyre." Charlotte Brontë. Ch. 15.

"I hardly know whether I had slept or not after this musing; at any rate I started wide awake on hearing a vague murmur, peculiar and lugubrious which sounded, I thought, just above me. I wished I had kept my candle burning: the night was drearily

dark: my spirits were depressed. I rose and sat up in bed, listening. The sound was hushed.

I tried again to sleep; but my heart beat anxiously: my inward tranquillity was broken. The clock, far down in the hall, struck two. Just then it seemed my chamber-door was touched; as if fingers had swept the panels in a groping way along the dark gallery outside. I said, 'Who is there?' Nothing answered. I was chilled with fear.

"All at once I remembered that it might be Pilot; who, when the kitchen-door chanced to be left open not infrequently found his way up to the threshold of Mr. Rochester's chamber; I had seen him lying there myself, in the mornings. The idea calmed me somewhat; I lay down. Silence composes the nerves; and as an unbroken hush now reigned again through the whole house, I began to feel the return of slumber. But it was not fated that I should sleep that night. A dream had scarcely approached my ear, when it fled affrighted, scared by a marrow freezing incident enough.

"This was a demoniac laugh—low, suppressed, and deep—uttered, as it seemed, at the very key-hole of my chamber door. The head of my bed was near the door, and I thought at first the goblin-laugher stood at my bedside—or rather, crouched by my pillow: but I rose, looked round, and could see nothing; while as I still gazed; the unnatural sound was reiterated: and I knew it came from behind the panels. My first impulse was to rise and fasten the bolt; my next, again, to cry out, 'Who is there?'"

2. Record the affective experiences of Mr. Bumble as described both from the Objective and from the Introspective standpoint in the following:

"Oliver Twist." Charles Dickens. Ch. 37.

"'Hem!' said Mr. Bumble, summoning up all his native dignity. 'These women at least shall continue to respect the prerogative. Hallo! hallo there! What do you mean by this noise, you hussies?'

"With these words, Mr. Bumble opened the door, and walked in with a very fierce and angry manner: which was at once exchanged for a most humiliated and cowering air, as his eyes unexpectedly rested on the form of his lady wife.

"'My dear,' said Mr. Bumble, 'I didn't know you were here.'

"'Didn't know I was here!' repeated Mrs. Bumble. 'What do *you* do here?'

"'I thought they were talking rather too much to be doing their work properly, my dear,' replied Mr. Bumble: glancing distractedly at a couple of old women at the wash-tub, who were comparing notes of admiration at the work-house-master's humility.

"'*You* thought they were talking too much?' said Mrs. Bumble. 'What business is it of yours?'

"'Why, my dear,' urged Mr. Bumble submissively.

"'What business is it of yours?' demanded Mrs. Bumble, again.

"'It's very true, you're matron here, my dear,' submitted Mr. Bumble, 'but I thought you mightn't be in the way just then.'

"'I'll tell you what, Mr. Bumble,' returned his lady. 'We don't want any of your interference. You're a great deal too fond of poking your nose into things that don't concern you, making everybody in the house laugh, the moment your back is turned, and making yourself look like a fool every hour in the day. Be off; come!'

"Mr. Bumble, seeing with excruciating feelings, the delight of the two old paupers, who were tittering together most rapturously, hesitated for an instant. Mrs. Bumble, whose patience brooked no delay, caught up a bowl of soap-suds, and motioning him towards the door, ordered him instantly to depart, on pain of receiving the contents upon his portly person.

What could Mr. Bumble do? He looked dejectedly round, and slunk away."

3. Study the behaviour (including the speech) recorded in the following passage, and select the points that are indicative of the subject or individual experient.

"Adam Bede." G. Eliot. Ch. 27.

"'No, by God!' Adam burst out, with rage that could be controlled no longer, throwing down the basket of tools, and striding forward till he was right in front of Arthur. All his jealousy and sense of personal injury, which he had been hitherto trying to keep under, had leaped up and mastered him. What man of us, in the first moments of a sharp agony, could ever feel that the fellow-man who has been the medium of inflicting it, did not mean to hurt us? In our instinctive rebellion against pain we are children again, and demand an active will to wreak our vengeance on. Adam at this moment could only feel that he

had been robbed of Hetty—robbed treacherously by the man in whom he had trusted ; and he stood close in front of Arthur, with fierce eyes glaring at him, with pale lips and clenched hands, the hard tones in which he had hitherto been constraining himself to express no more than a just indignation, giving way to a deep agitated voice that seemed to shake him as he spoke.

" ' No, it'll not be soon forgot, as you've come in between her and me, when she might ha' loved me—it'll not soon be forgot as you've robbed me o' my happiness, while I thought you was my best friend, and a noble-minded man, as I was proud to work for. And you've been kissing her, and meaning nothing, have you ? And I never kissed her i' my life, but I'd ha' worked hard for years for the right to kiss her. And you make light of it. You think little o' doing what may damage other folks, so as you get your bit o' trifling, as means nothing. I throw back your favours, for you're not the man I took you for. I'll never count you my friend any more. I'd rather you'd act as my enemy and fight me where I stand—it's all th' amends you can make me.' "

CHAPTER III

THE BUILD AND FUNCTIONS OF THE NERVOUS SYSTEM

WE may regard the nervous system as representing the unity of the body, bringing its different parts and organs into relation with one another. (See Fig. 1.)

In man the nervous system is made up of two parts: (1) the Central Nervous system, and (2) the Peripheral Nervous system. The first part consists of the brain within the skull and the spinal cord running through the spinal canal in the vertebral column. The second system consists of the Cerebro-spinal (Somatic) nerves and the Autonomic (Visceral) nerves. The latter comprises (*a*) nerves right and left of the vertebral column on the ventral side, (*b*) ganglia, or collections of nerve cells, in connexion with the viscera, i.e. circulatory, respiratory, digestive, and reproductive organs.

The nerves connected with the exterior sensory receptors and those which are connected with the voluntary muscles belong to the Somatic group. The nerves belonging to the involuntary or smooth muscles carrying out movements in the interior of the body belong to the Autonomic system. Briefly, we may say the Somatic nerves are concerned with the reception of stimulation from the external world and with voluntary response thereto, while the Autonomic or Sympathetic system is concerned with the vital functions of the body. Though anatomically connected with the nerves of the spinal cord, the Autonomic system is to some extent capable of functioning independently ; hence its name, Autonomic.

THE STRUCTURE OF THE NERVOUS SYSTEM

(i) *General Plan.*—The simplest picture which we can form of a mechanism which can receive and respond to stimulation

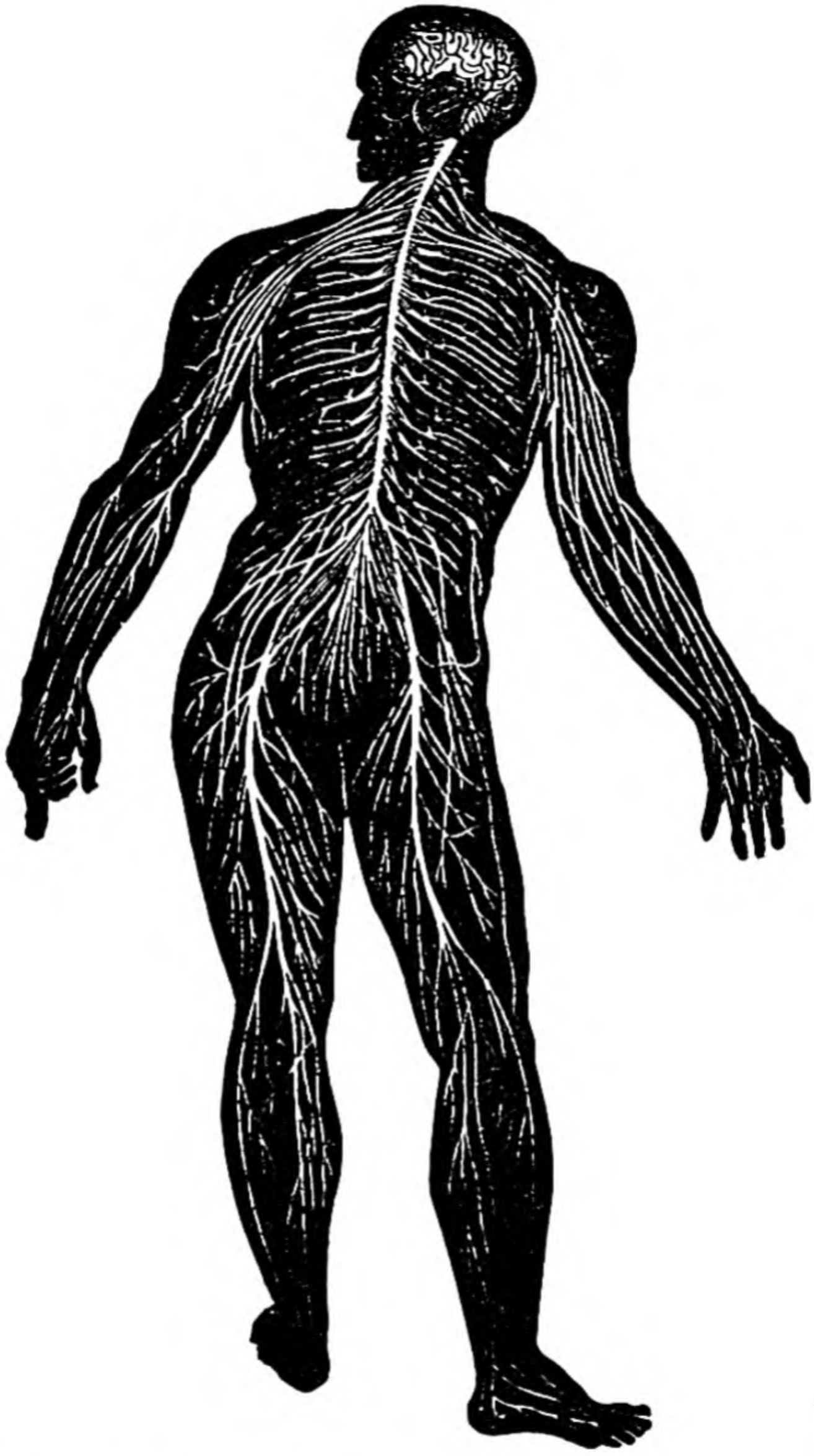


FIG. 1.—GENERAL VIEW OF THE NERVOUS SYSTEM, SHOWING BRAIN, CORD, AND NERVES
(From Martin's "Human Body")

is that of a single cell having a contractile process. This fragment of specialized protoplasm, with its nucleus, is capable of being excited by its environment, e.g. irritated by contact, and of responding to this excitation by contraction of its process. It can also respond in the same manner to changes within its own economy.

A higher form of mechanism is reached when the cell that receives the excitation is distinct from the contractile process. Such an arrangement is present in the nervous structure of some polyps.

A further stage of elaboration gives a further division of structure and of function. One type of cell receives the excitation from the environment and communicates it to a central cell, from which it is again communicated to the contractile process. (See A. B, and C in Fig. 2.)

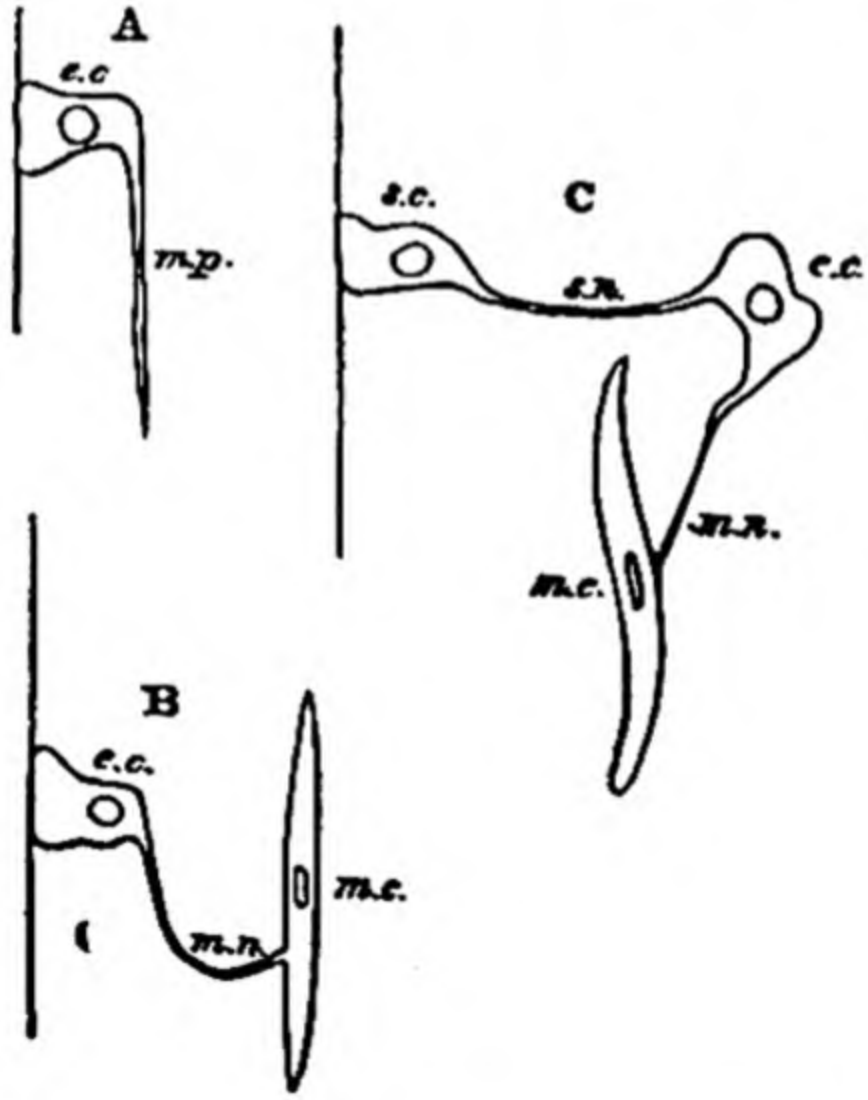


FIG. 2.—SIMPLEST FORMS OF NERVOUS SYSTEM
e.c., EXCITATORY CELL; s.c., SENSORY CELL; c.c., CENTRAL CELL; m.c., MOTOR CELL; s.n., SENSORY NERVE; m.n., MOTOR NERVE m.p., MOTOR PROCESS.

Here there is the prototype of the central nervous system: receptive surface, afferent nerve, synapse, efferent nerve,

contractile process or muscle. We may thus regard the nervous system as the link between stimulation and response.

(ii) *Structural Units of Cerebro-spinal System.*—The system consists of :

1. Receptors. Sensitive end organs, e.g. those situated in the eye, ear, nasal cavities (Distance Receptors) and those in skin, tongue, muscles, joints, etc.
2. Afferent or Sensory Nerves, conduction paths leading to the central organs. Centripetal Paths.
3. Central strand of Connexion in Spinal Cord and Brain.
4. Efferent or Motor Nerves, conduction paths to the effector organs. Centrifugal Paths.
5. Effectors. Organs of Response. (Muscles and Glands.)

Considered in its elementary parts the central nervous system is made up of cell bodies and fibres. The cell bodies are the main constituents of " grey " matter, while the nerve fibres constitute " white " matter. The name is descriptive of the appearance of the matter to the naked eye. The majority of neurologists holds that the structural unit of the nervous system is a *neurone.* A neurone comprises a cell body and its processes. One of these, a long threadlike prolongation, becomes the *axon* or axis-cylinder of a nerve fibre. Between neurone and neurone there is no known *structural* connexion ; they are contiguous but not continuous. Their place of interlacing is termed a synapse. It is the place of *functional* connexion. (See Fig. 3.)

Many cell bodies have numerous processes the terminations of which resemble the fine branches of a tree. Such processes are termed *dendrons* or *dendrites.* Some cells, called *bipolar,* do not have short branching processes, but an axon-like prolongation from each end of the cell body.

A nerve fibre is made up of a central portion, the *axis-cylinder* (or axon) and an outer sheath. Those belonging to the cerebro-spinal axis have, further, a protective packing between the cylinder and outer cover. This is called the *medullary-sheath.* At the synapse the axon divides into branches. Bundles of fibres constitute the nerves, and in the case of the great nerves, running from the spinal cord to the

extremities of the limbs, axons may be upwards of a yard in length.

The function of the dendrons is to receive the nervous

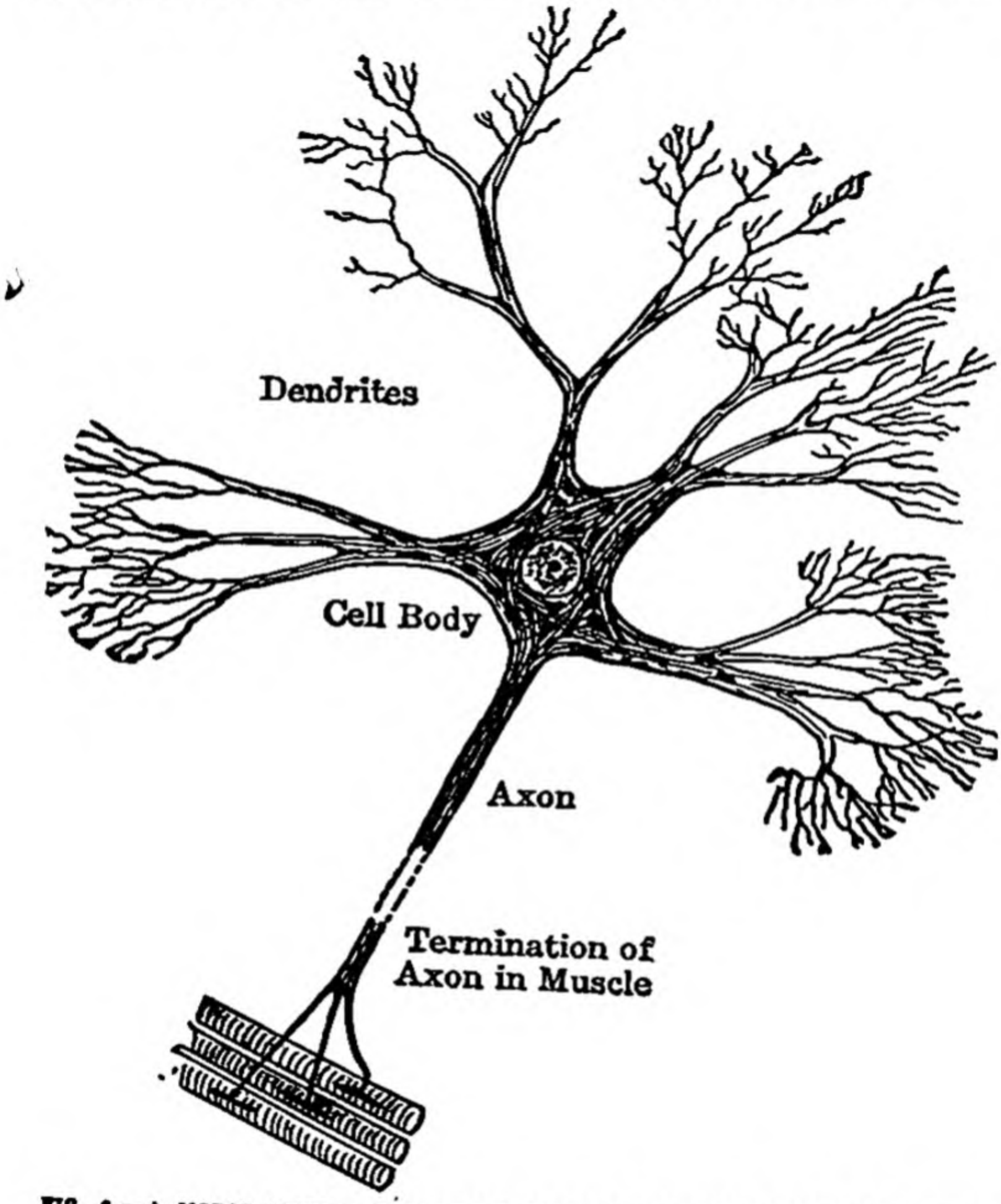


FIG. 3.—A MOTOR NERVE CELL FROM THE SPINAL CORD, HIGHLY MAGNIFIED

excitation, while that of the cell body is to store and develop nervous energy. The function of the axon is to conduct the nervous impulse to the synapse, whence it passes to the next neurone, or directly to an effector. The nature of nervous excitation is not known; it is certainly dependent upon chemical change.

THE SPINAL CORD

As the name suggests the spinal cord is a strand of nervous tissue. The general shape and arrangement of grey and white matter centring round a canal is seen in the accompanying figure (Fig. 4.) The arrangement of the grey and white matter is symmetrical right and left of the central canal. The outer layers of white matter are composed of : (*a*) afferent fibres running into the cord through the spinal nerves coming from the receptors, (*b*) efferent fibres running out from the

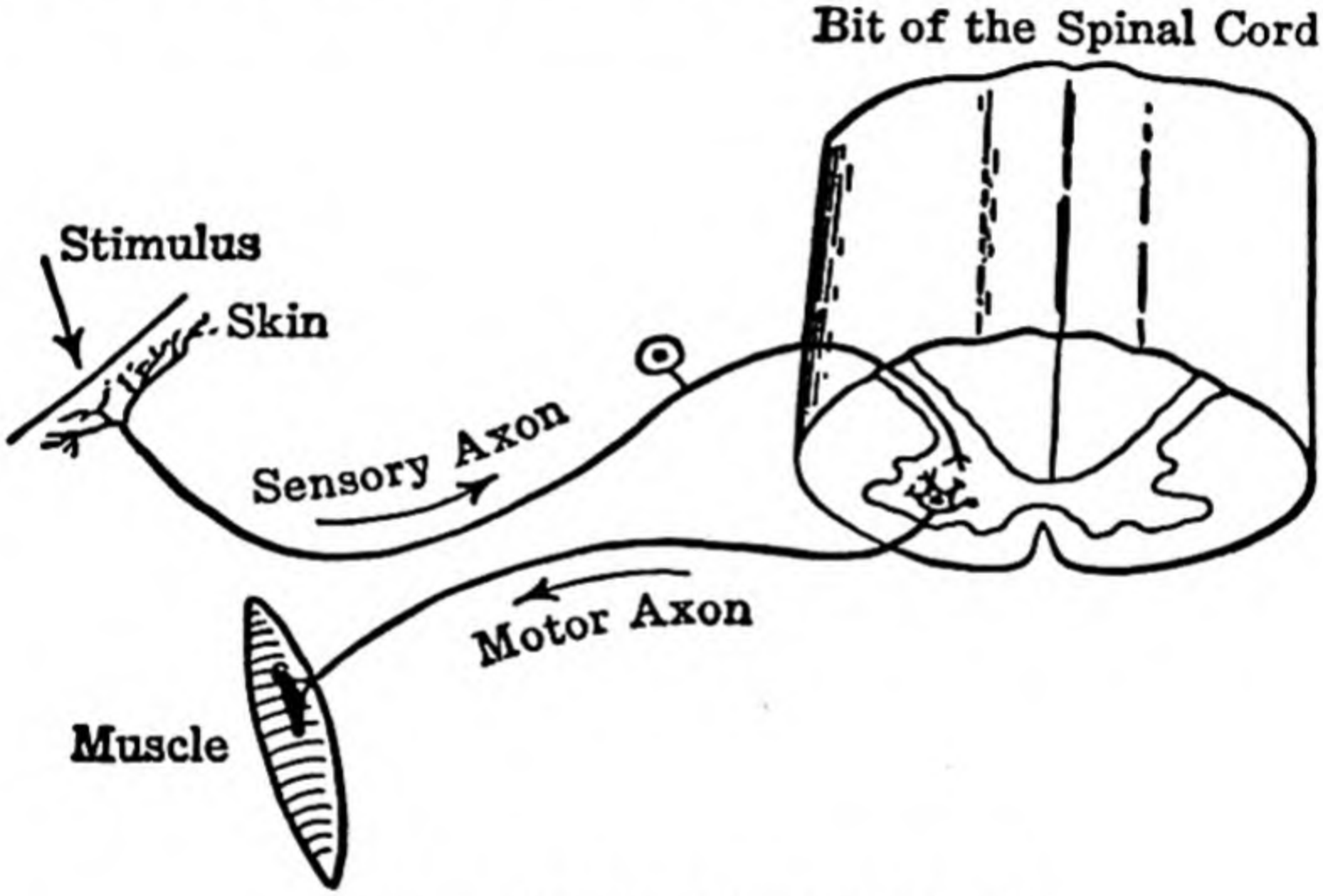


FIG. 4.—A TWO-NEURONE REFLEX ARC

cord through the spinal nerves to the effectors, (*c*) fibres running longitudinally up and down the cord, (*d*) fibres bringing the left and right halves of the cord into communication with each other. In its outline the grey matter resembles the wings of a butterfly. The wings on the ventral aspect are called the anterior horns ; those on the dorsal aspect, the posterior horns. Each spinal nerve has two roots coming from the anterior and posterior aspects of cord respectively. The fibres of the anterior root arise in the anterior horns and conduct *e*fferent impulses to the organs of response. Those of the posterior root are *a*fferent fibres conducting impulses from the skin, muscles, tendons, joints, and from the viscera. On

this root, just above its junction with the anterior root, is the spinal ganglion, i.e. the mass of nerve cells which give rise to the fibres which constitute the root, the fibres which run on the one side to the receptor surface and on the other to the cord. Roughly speaking, different levels of the cord serve different levels of the body, but there is much overlapping. Reference to Fig. 1 will show the number of nerves serving the arms and legs. In these two regions of the cord its sectional area is greater than in the regions immediately above and below.

FUNCTIONS OF THE SPINAL CORD

The spinal cord is the centre for spinal reflexes and the great path of communication between the peripheral structures (Somatic and Visceral nerves) and brain.

(*a*) It is the communication centre between afferent and efferent impulses of the same and of different levels of the body, i.e. spinal reflexes. Reflex activity is the transformation of a centripetal into a centrifugal nerve impulse by means of a central organ. If we interpret this definition in its widest sense we could regard all action as reflex, but we may restrict the term here to the "unacquired" or original responses to stimulation. Thus interpreted the term "reflex" carries with it no implication that the stimulation is accompanied by sensation. In some cases it is, in others it is not. These reflexes are "unconditioned."[1] A spinal reflex requires (1) a receptor, (2) afferent nerve fibres for the centripetal impulse, (3) a nerve centre, (4) efferent nerve fibres for the centrifugal impulse, (5) effectors, organs of response. These constitute a "*reflex-arc.*" This scheme represents a minimum requirement. Often more than one centre is involved. Spinal animals, i.e. animals with cord severed from brain, can carry out reflex responses to stimulation. If the toe of a spinal frog be pinched, the leg will be drawn away from the stimulus. This is an instance of a *short spinal reflex*; the stimulation and the motor response both belong to the same level of the cord. If the skin of a spinal dog be irritated behind the shoulder,

[1] Conditioned reflexes will be referred to in Chapter VIII.

the hind foot may be brought forward to perform the scratch reflex. This is a *long spinal reflex* involving different levels of the cord. As other examples of " unconditioned " reflexes we may cite the blinking response to light, the watering of the mouth (salivation) in response to food, and coughing in response to internal stimulation.

(*b*) But the spinal cord is also the line of communication which brings all the regions of the body supplied by spinal nerves under the control of the brain. This control is manifested in *inhibition*. A spinal reflex which is inevitable in a spinal animal can be inhibited in an animal in whom the brain is intact. A normal well-trained dog will refrain from scratching in the drawing-room if his master remonstrates. The motor centres in the Cortex have inhibited the response of the cord. The brain may *check or regulate irradiation*, the spread of reflex response from field to field. In general, the more intense the stimulation the wider the field of response; e.g. the response in the hands to stimulation by an induction coil spreads up the arm, and hence to the opposite arm and to the legs, as the strength of the current is increased. Conditions in the cord itself determine the path taken by reflex response. At the synapses there may be resistance in certain directions, facilitation in others. But the presence of the higher brain centres furnishes additional check on irradiation. Similarly, they may *co-ordinate reflexes*. In their simultaneous operation reflexes can be allied or antagonistic, i.e. two reflexes may both demand the same response in an effector or demand interfering responses (e.g. extension and flexion of the same limb). In some cases the conditions in the cord itself may determine the solution of the competition, but in others the higher brain centres may be concerned in co-ordinating the responses.

THE BRAIN

Before trying to describe the structure of the human brain it will be helpful to consider the brain in a simpler stage of evolution.

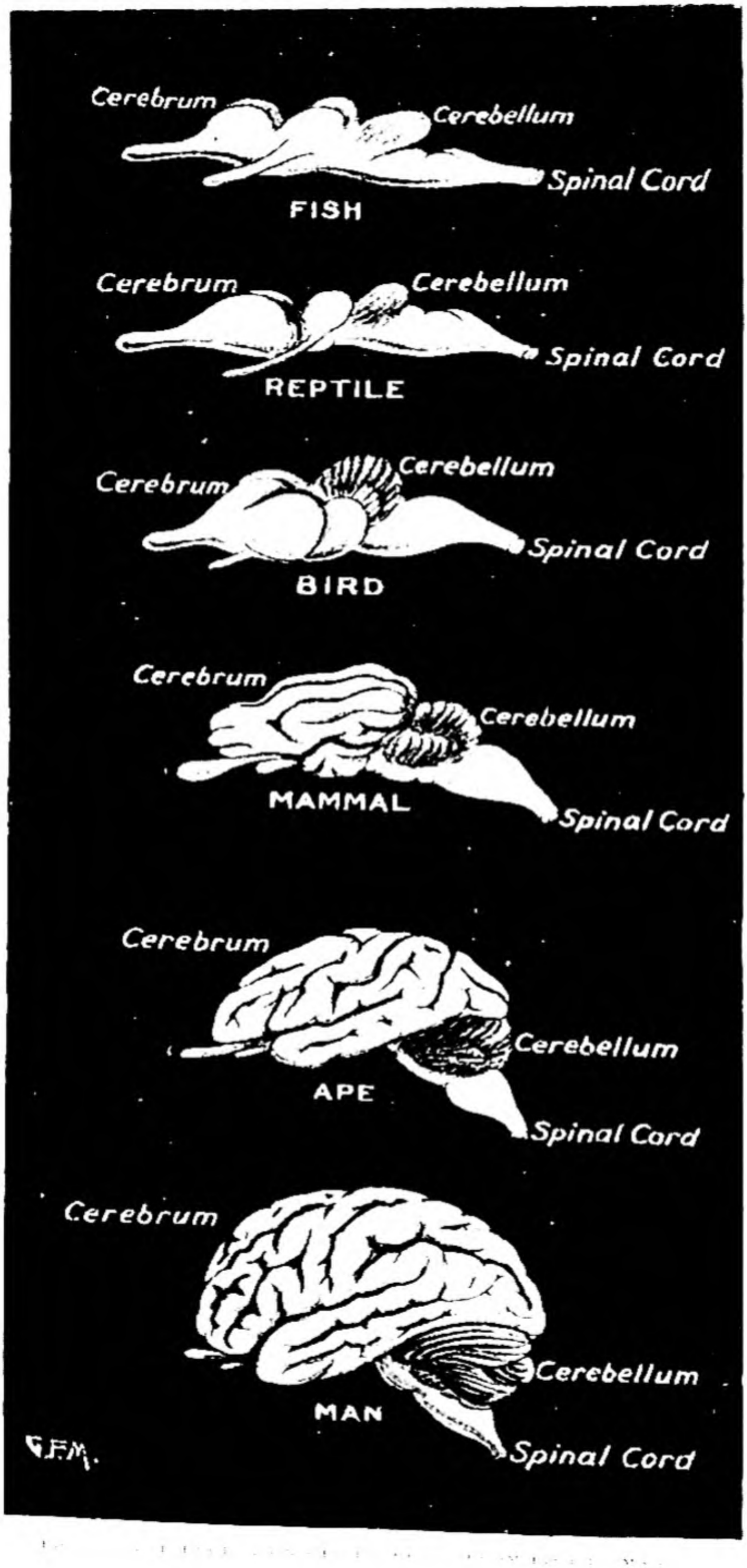
In the embryo of a vertebrate animal the nervous system is represented by a tube. The foremost portion of this tube

constitutes the brain, and the hinder portion the cord. The front part of the tube is gradually dilated into three vesicles which are the groundwork of fore, mid, and hind brain. Just as the cord represents a symmetrical arrangement right and left of the canal, so the brain shows a symmetrical development right and left of a median line. The first or foremost vesicle is subdivided. From the foremost portion arise the optic vesicles and the lateral vesicles which become the cerebral hemispheres. The walls, roof, and floor of the various vesicles undergo change. They thicken irregularly, outgrowths appear, nerve cells and nerve fibres are differentiated. The tube no longer remains straight, but bends at the middle vesicle. By the eighth or ninth week the fundamental features of brain are present in the human embryo. Since we may roughly compare this stage in the development of a human brain with the brain structure present in fish, we may usefully construct a table of the parts of brain as they appear in fish side by side with the subsequent developments in mammal :

FISH BRAIN with the developments in original Vesicles.	MAMMALIAN BRAIN
1. *Anterior Vesicle* Sub-division : From foremost section arise (*a*) the two hollow *optic vesicles*, from which arise the two retinal cups (the receptors in the eyes) and the	*Fore Brain.*
Optic Stalks, which attach them to brain (see fig. 5).	Optic Nerves, Chiasma, Optic Tracts leading to Optic Thalami.
(*b*) The two lateral outgrowths from the front of which develop two projections, the *Olfactory Lobes.*	
The lateral outgrowths are	Olfactory Lobes.

FISH BRAIN	MAMMALIAN BRAIN
covered by a membrane which gradually thickens and extends backward, the	
Pallium.	The Cerebral Hemispheres.
The floor of the Lateral outgrowths thickens and forms the	
Corpora Striata.	Corpora Striata.
The walls of the *original* Vesicle thicken and form the	
Optic Thalami.	Optic Thalami.
Cavities of lateral outgrowths	Lateral Ventricles.
Cavity of original Vesicle	Third Ventricle.
2. *Middle Vesicle*	*Mid Brain.*
The roof thickens and forms the	
Optic Lobes. (Corpora Bigemina)	Optic Lobes (Corpora Quadrigemina).
The floor thickens and becomes differentiated into a strand of nerve fibres.	Peduncles or Crura.
Cavity of original Vesicle	Aqueduct of Sylvius.
3. *Posterior Vesicle*	*Hind Brain.*
The front part of roof thickens to form the Cerebellum	Cerebellum.
The floor and sides are differentiated into a Strand of Nerve fibres. Pons in front with the Medulla Oblongata as junction of cord and brain	Pons.
	Medulla Oblongata.
Cavity of original Vesicle	Fourth Ventricle.

If we look at Fig. 5, illustrating the chief stages of evolution in brain structure from fish to man, we shall see that the chief changes are in the cerebral hemispheres and in the cerebellum. The Pallium, which covers the two lateral out-


Cerebrum
Cerebellum
Spinal Cord
FISH
Cerebrum
Cerebellum
Spinal Cord
REPTILE
Cerebrum
Cerebellum
Spinal Cord
BIRD
Cerebrum
Cerebellum
Spinal Cord
MAMMAL
Cerebrum
Cerebellum
APE
Spinal Cord
Cerebrum
Cerebellum
MAN
Spinal Cord
G.F.M.

growths in fish, becomes enormously thickened. At the same time it increases in extensity and spreads backward. In birds it already covers the whole of fore brain. In mammals it covers mid brain also, though the four hillocks of the corpora quadrigemina can easily be seen by simply lifting up the occipital lobes of the hemispheres. In man it overhangs the cerebellum. In the same way the relative size of the cerebellum is much increased as we pass from fish to apes and man. The cerebral hemispheres and the cerebellum not only occupy a larger space, but the cortex or rind of each is of much greater extent. Instead of being a smooth surface it is folded into pleats. The folds of the pleats are termed Convolutions, and the depressions between them Sulci, or, in the case of the deeper folds, Fissures. A further change in structure is the decrease in the relative prominence of the Olfactory Lobes and of the Optic Lobes. With regard to the former, one can point to the lessened importance of smell when the other two receptors for stimuli from a distance, sight and hearing, improve in effectiveness. With regard to the latter one cannot make any similar reference. The change illustrates a different principle, viz. division of labour and specialization. Functions carried out by the optic lobes of fish and birds are, in the mammalian brain, controlled by the cerebral hemispheres.

Change in brain structure represents change in the behaviour of the animal, and this in its turn represents change in the demands of the environment.

The Grey Matter of Brain.—The rind or Cortex of the cerebral hemispheres and the rind of the cerebellum must be thought of as sheets of grey matter. Vast numbers of nerve cells are packed away in the convolutions between the sulci of these two organs. The Cortex covers not only the lateral and upper surfaces of the hemispheres, but also their mesial surface, where the two hemispheres lie side by side. Its surface area is more than 1½ square feet.

The other principal masses of grey matter are : the corpora striata and optic thalami in fore brain ; the corpora quadrigemina in mid brain, and the grey matter of the pons and medulla or bulb.

White Matter of Brain.—The remainder of brain we may treat as made up of fibres, lines of communication: (*a*) The fibres linking parts of the cortex with one another, Association fibres; (*b*) The fibres linking right half with left of brain. We will particularize the corpus callosum, a thick band of fibres connecting the two hemispheres, and the transverse fibres of the pons connecting right and left of the bulb. (*c*) The fibres linking fore brain with hind brain; (*d*) the fibres running from the cortex to the cord through the peduncles, pons and medulla, Pyramidal Tracts; (*e*) the fibres of pons and medulla linking brain and cord.

PATHS CONNECTING SPINAL CORD AND BRAIN

In function we can distinguish two kinds of tracts: (i) Ascending, those conducting impulses from the cord to the brain. (ii) Descending, those conducting impulses from the brain to the cord.

Ascending Tracts.—The impulses which enter the cord by the posterior sensory roots, having been communicated through a synapse to the axon of another neurone, may pass out again through the motor roots of their own or a higher level—spinal reflexes. But they may pass up the cord to the brain by an ascending tract.

(*a*) Impulses may travel up the cord by afferent fibres to the synapses of the medulla and there be "relayed," i.e. pass to different neurones. The axons of these further neurones cross over and run forward on the opposite side of the bulb from that on which they have their origin. They reach the synapses of the corpora quadrigemina and the optic thalami. From these ganglia the impulses may be again relayed and pass forward to the cortex.

(*b*) Another tract for afferent impulses is by way of synapses in the cord to the medulla and thence to the cerebellum, whence they can be again relayed to the cortex.

(*c*) Some impulses on entering the cord are immediately relayed to a neurone on the opposite side of the cord and thence pass directly to the thalamus.

The paths (*a*) and (*b*) are followed by impulses arising from

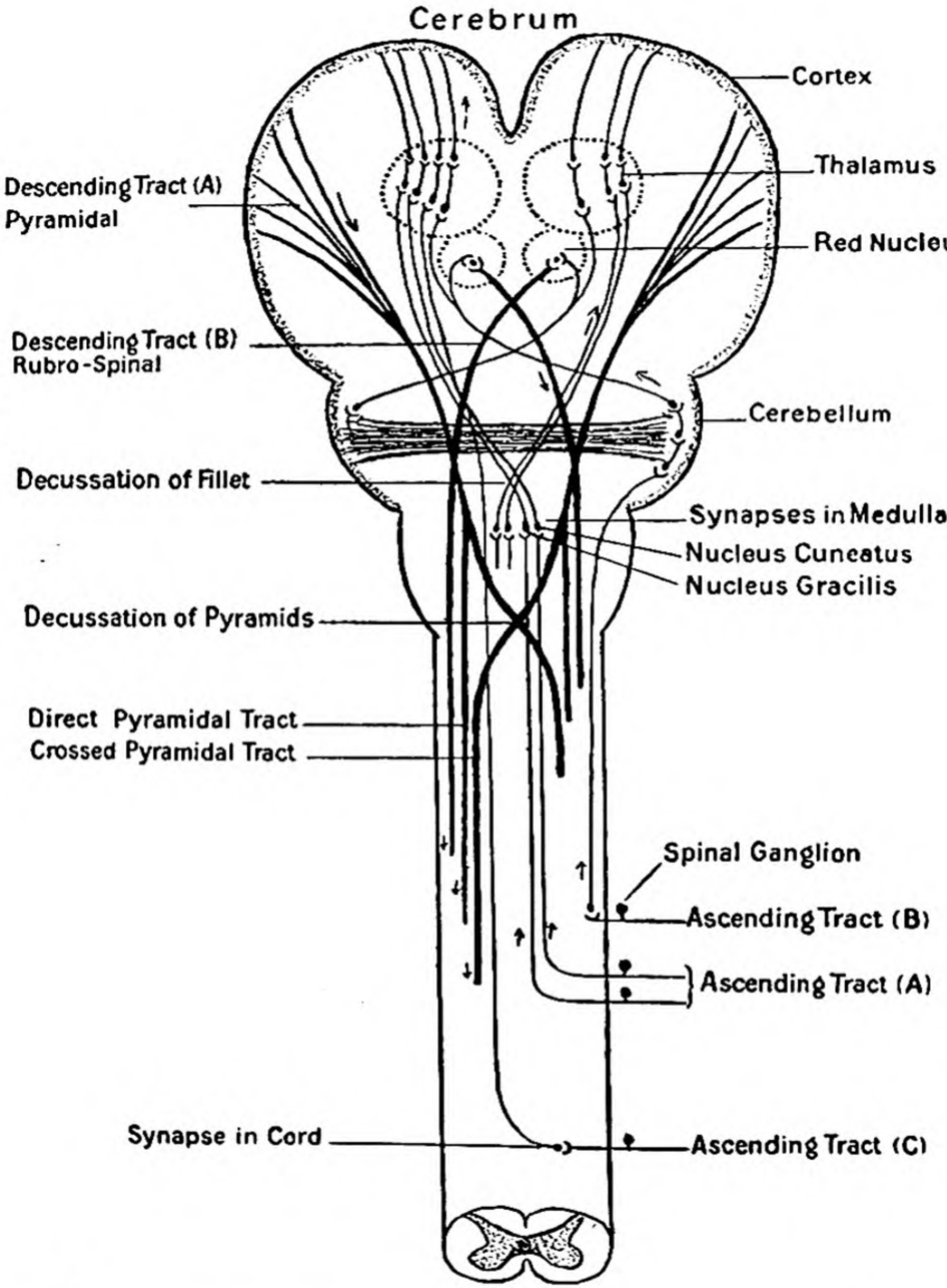


FIG. 6.—PRINCIPAL ASCENDING AND DESCENDING TRACTS OF BRAIN AND SPINAL CORD

muscles in the trunk and limbs, that is, from *proprioceptive* stimulation. (A receptor is termed a "*proprioceptor*" if it is stimulated by some event within the organism itself, e.g. the movement of a muscle.) But only path (*a*) is sensory, i.e. correlated with sensations of movement (kinæsthetic sensations).

Tracts (*c*) are the paths for stimulation arising in the skin and viscera, for sensations of contact, pressure, pain, heat, and cold.

Descending Tracts.—The most important descending tracts are (*a*) the *Pyramidal Tracts* from hemispheres to cord. The axons of these neurones situate in the region of the Rolandic fissure pass beside the thalami and into the peduncles to pons and the medulla. Here each of the symmetrical strands divides into two parts. Of these the larger bundle runs across to the opposite side of the medulla and descends the cord in the lateral region; while a small bundle of axons continues its path and without crossing descends the cord on the ventral side. The pyramidal tracts are the great path-way for impulses to the voluntary muscles employed in skilled movements. A lesion on the Rolandic area entails motor disablement on the *opposite* side of the body.

(*b*) *Rubro-Spinal Tracts.*—These run from the nuclei rubri in mid-brain to the cord. The axons cross and pass on the opposite side of brain to medulla and thence to the anterior horn of the cord. This is the pathway for impulses to muscles employed in unskilled or mechanical movements. See Fig. 6.

CRANIAL NERVES

By means of the twelve Cranial nerves the brain has direct connexion with the sense organs situated in the head and with the muscles of the head and neck. It also has direct connexion with the larynx, pharynx, alimentary canal, heart, lungs, glands, and blood vessels. The following table will show the nature and distribution of these nerves:

Name	Nature	Origin and Destination
1. Olfactory	Sensory	From nasal epithelium (smell).

Name	Nature	Origin and Destination
2. Optic	Sensory	From retina (sight).
3. Oculo-motor	Motor	To eye-moving muscles. S.[1] To ciliary muscles. V.
4. Trochlearis	Motor	To eye-moving muscles.
5. Trigeminal	Sensory	From face, mouth, scalp.
	Motor	To muscles of mastication.
6. Abducens	Motor	To eye-moving muscles.
7. Facial	Motor	To facial muscles. S. To salivary glands. V.
8. Auditory — Cochlear	Sensory	From ear, organ of Corti (sound).
8. Auditory — Vestibular	Sensory	From ear, semicircular canals (posture and equilibration).
9. Glosso-pharyngeal	Sensory	From tongue (taste).
	Motor	To salivary glands and throat.
10. Pneumogastric (Vagus)	Sensory	From alimentary canal, heart, lungs.
	Motor	To alimentary canal, heart, lungs. V. To larynx. S. (?)
11. Spinal Accessory	Motor	To neck, shoulder. S. To throat, heart. V.
12. Hypoglossal	Motor	To tongue-moving muscles.

The Olfactory nerve has its cranial termination in the olfactory lobe of the brain. The Optic nerve has its cranial termination in the optic thalami and in the corpora quadrigemina. The third and fourth nerves have their origin under the corpora quadrigemina. All the other cranial nerves have their origin or termination in the pons or bulb.

FUNCTIONS OF THE BRAIN

Speaking of the brain as a whole, we may say that its work is to control and co-ordinate the work of the entire nervous

[1] S = Somatic, belonging to Cerebro-Spinal Axis. V = Visceral belonging to Autonomic System.

system. We may compare it to the head office of a big business which has its branch offices in Bulb and Cord and is in telephonic communication with the whole body through the Somatic and Visceral Nerves. The higher the region of the brain contemplated the more specialized is its function.

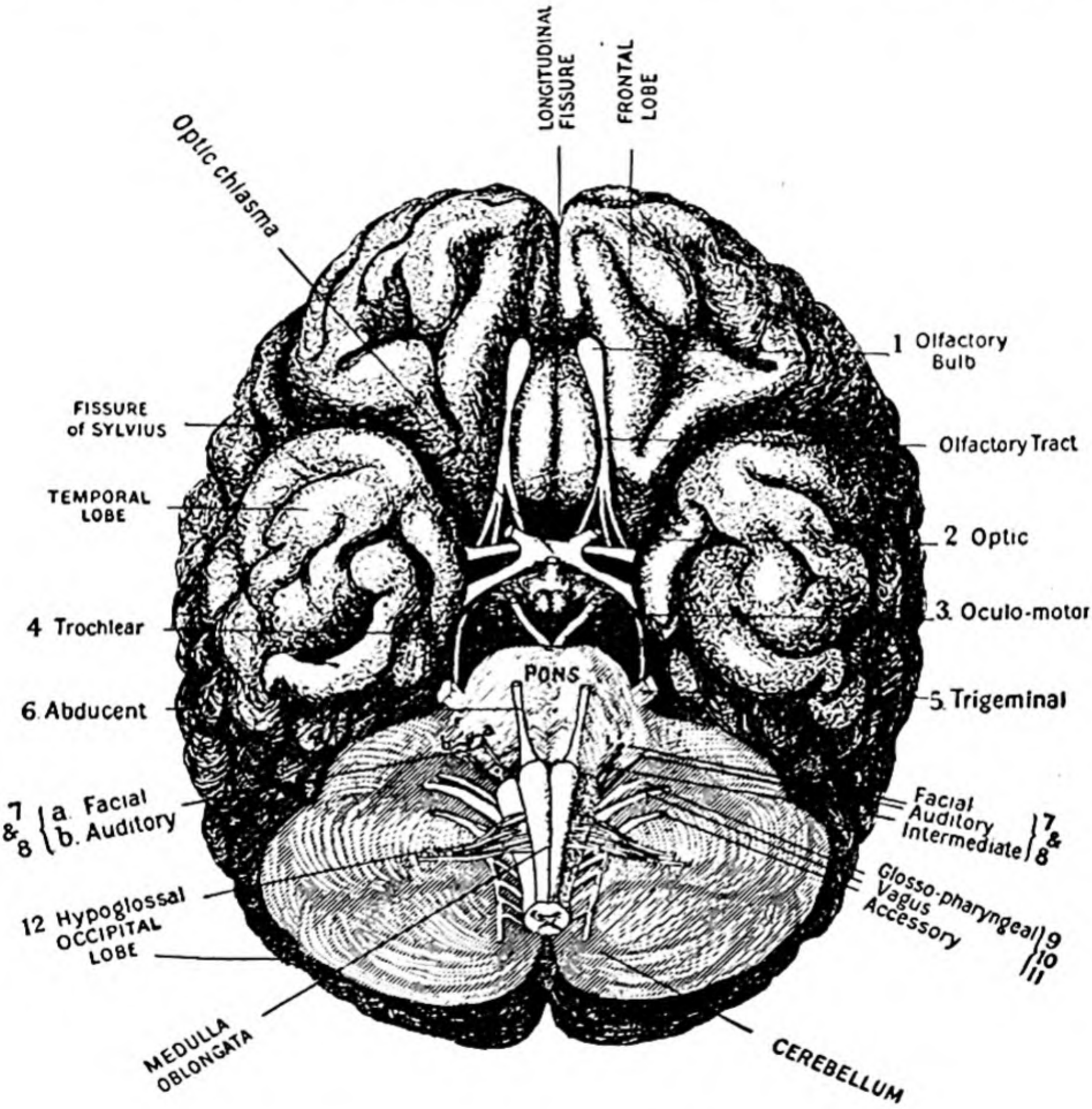


FIG. 7.—THE BRAIN FROM BELOW, SHOWING CRANIAL NERVES

The Medulla, a continuation of the cord, with its number of cranial nerves, is essential for life itself in the case of the higher animals. The Cerebellum in man is important for the co-ordination and control of movements. It receives

impulses from the cord and sends impulses to mid brain and the Hemispheres.

The connexion of the second, third, and fourth nerves with the Corpora Quadrigemina is sufficient to show how important these organs are for vision and for control of movement by the eyes. They also receive impulses from the Cochlear and Vestibular branches of the eighth nerve, and hence are concerned with auditory and postural stimulation.

The Optic Thalami are connected with vision, and anatomical considerations suggest that they have the function of transmitting sensory impulses generally. We have seen that the Ascending Tracts (*a*) and (*c*) both lead to them.

We have already said that the cortex of the Cerebral Hemispheres is a sheet containing cell bodies. Here the sensory impulses find their goal, and the motor impulses of voluntary movement may be said to begin. The localization of these sensory and motor areas so far as known is shown in Fig. 8. Such localization is the outcome of the clinical study of disease and of laboratory experiments. We have to regard the hemispheres as controlling all the activities of the lower brain centres. The higher an animal stands in the scale of life the more important are the hemispheres for his well-being. This can be seen from the behaviour of the animal after the removal of the hemispheres. In birds such extirpation is followed by lack of all spontaneity in movement, although the bird can carry on all the necessary activities of life. In the dog the loss of the hemispheres is accompanied by the loss of all the acquired meaning of sense experiences. If the animal hears sounds, it no longer discriminates their significance. It shows no sign of recognizing its master. It is unresponsive to petting and to scolding. It makes no effort to seek food, though it will eat when food is brought in contact with the nostrils. In monkeys and apes the presence of the hemispheres seems essential for life, since these animals do not long survive the removal.

While there may be movement in response to stimulation, we may question whether there can be consciousness in any animal deprived of the hemispheres. It is not a point upon which one can be dogmatic, for obviously no direct

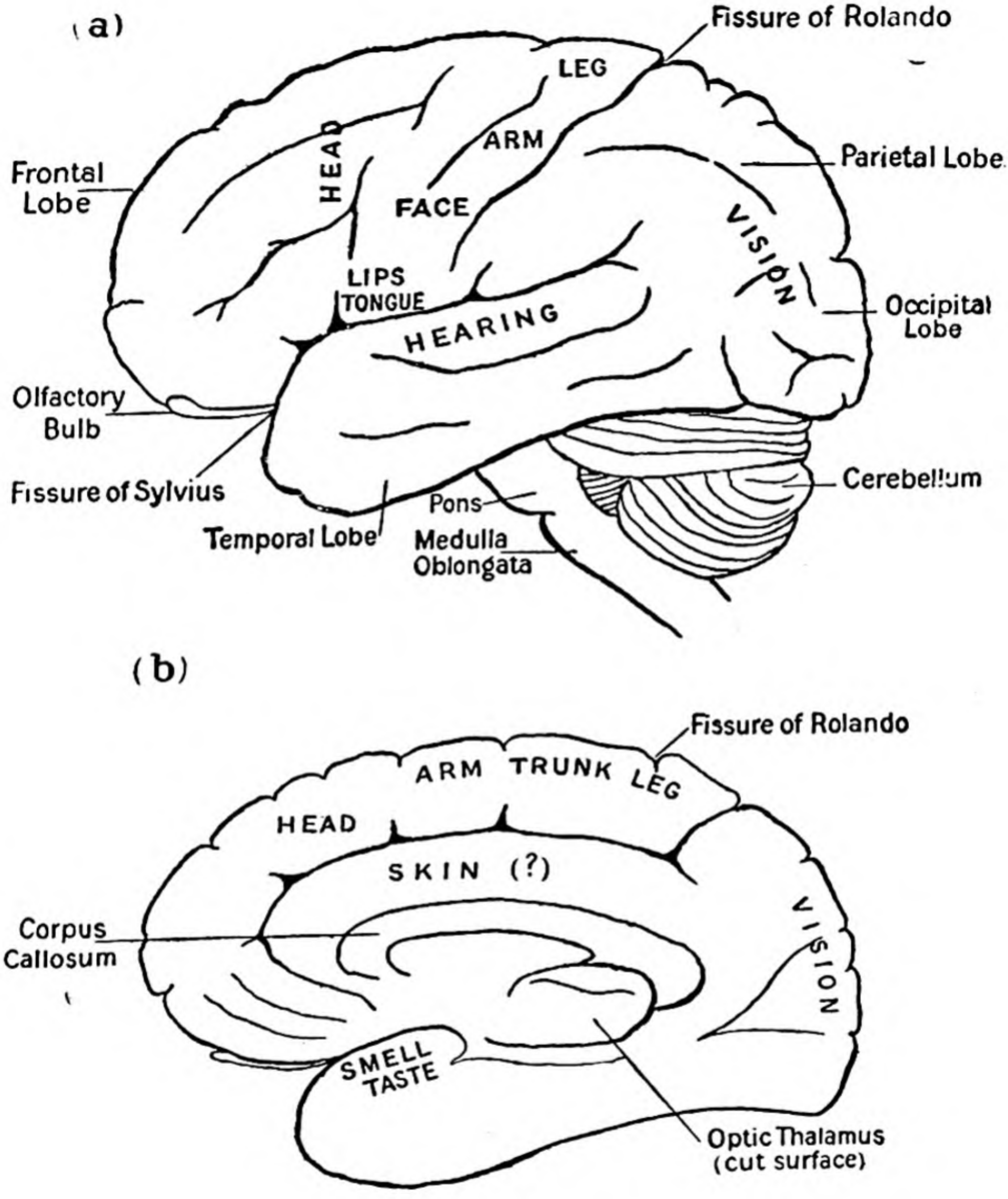


FIG. 8.—THE BRAIN (After Waller)

(*a*) Lateral view of left hemisphere
(*b*) Mesial surface of right hemisphere

evidence is obtainable. Sense perception as we know it in man is only present when the hemispheres are intact. The same is true of voluntary movement. But it is necessary to remember that we must think of the brain as a whole. Consciousness is not the correlate of the hemispheres considered apart from the rest of brain. This should be realized when looking at Fig. 8. We are not in the position to identify any particular area on the cortex as the seat of nervous activities corresponding to memory or thought. Aphasia, a disease in which there is some disability to use words, to speak, or to read, or to write, has given rise to many speculations concerning centres for verbal images. Centres for the images of words as heard, centres for the images of words as seen, for words as spoken (kinæsthetic images), were deemed essential and were located in the cortex. The localization was based on the nature of the particular defects found in particular cases of brain lesion. Such speculations, however, do not all seem to have been founded on very satisfactory physiological evidence, and they are wholly misleading in their psychological implications. We may quote Dr. Head: "Gross organic injury does not remove the structural basis of a 'faculty' or the repository of 'images,' but disturbs the march of events necessary for perfect accomplishment of some acquired act." ("Speech and Cerebral Localization": "Brain," XLVI, p. 427).

THE AUTONOMIC SYSTEM

This system of axons and ganglia is from the point of view of evolution older than that of the cerebro-spinal axis, and we have already said that it has been termed "autonomic" from the fact that it can to some extent function independently. None the less, it more often operates as an auxiliary; it serves as a second mode of response to sensory stimulation received through the cerebro-spinal system. When a receptor sends an impulse to a synapse of the spinal cord or brain, this impulse passes to the axon of a motor nerve (spinal or cranial) and brings about the response to the stimulation. We may term this "somatic response." But the impulse at the synapse in the cord or brain can also be taken up by an

axon connected with the ganglion cell of the autonomic system. From this synapse it can pass to the neurones in connexion with smooth muscle, or with heart muscle, or with glands, or with blood vessels. This response, which, for brevity's sake, we will term "autonomic," is fundamental for life. In the table of cranial nerves we have included the responses of the autonomic system, which stand in connexion with cranial motor nerves. Had we made out a table for spinal nerves we should have had similarly to include responses of the neurones of the autonomic system, which stand in connexion with spinal nerves. We may emphasize the significance of these "autonomic" responses in relation to emotion. Changes in the action of the salivary glands, arrest of the peristaltic movements of the smooth muscle of the alimentary canal, secretion of adrenin from the adrenal glands, may as truly be responses to the sight of an enemy as the clenching of the fist. The latter is the response of the cerebro-spinal system; the former that of the autonomic. In Chapter X we show the important part played by organic sensations in emotional experience. We have already pointed out that the responses of the cerebro-spinal system give rise to further stimulation of receptive surfaces in the muscles and tendons —proprioceptors. When I respond to the sight of my teacup by lifting it up to my mouth, the contraction of the muscles and the pull on the tendons in my arm stimulate receptors which give rise to the central excitation corresponding to the kinæsthetic sensations. The same is true for the autonomic system; within the whole nervous system there is ceaseless reciprocity.

ILLUSTRATION

We may take a concrete instance to illustrate the nervous system at work. Let us picture a young man during summer holiday sitting in the evening on the pier listening to the band and marking the ragtime with his feet. He is physically fit, enjoying life. Mentally, we will say, he is aware of his surroundings—he is seeing the people, etc.—but that the music and his own movements are in the forefront of his consciousness. He is care-free, living in the moment, ready

for whatever may turn up. If we look at the physiological side of life we should say that the obvious stimulus is the music and the obvious response to environment is the movement of the feet. We may note that this response is unskilled or mechanical movement. The receptor is the organ of hearing, and the path of conduction to the lower auditory centres is the auditory (cochlear) nerve. From these centres the excitation is relayed, and finally reaches the cerebral cortex, somewhere in the temporal area. Through synapses the excitation is communicated to the rubro-spinal tract, and hence to the legs and feet, where muscular contraction and relaxation ensues. In addition to the obvious stimulation and response there is stimulation of the receptors in the eyes, and responses in eye-movements. There is stimulation of receptors in the nostrils from the sea, the tar, and the shipping. There is stimulation of the skin-receptors by the fresh evening breeze. To these stimulations there may be no obvious movement responses, but they have their effects on the respiration and on the other life-processes of the body. If we think of internal stimulation and response we may notice the cycle of events constituting respiration and the cycle of events constituting digestion. The food eaten at dinner is providing stimuli for the receptors in the stomach and intestines. The glands and smooth muscles of these organs are responding thereto, so also are the other digestive organs, e.g. the pancreas and the liver. Both the cerebro-spinal and the autonomic systems are concerned in these responses. If the young man had been playing tennis instead of listening to the band we should have seen hand and eye co-ordination in skilled movements. Physiologically we should have needed to note that the co-ordination of visual and kinæsthetic stimulation would involve excitation of association fibres in the cortex, while the skilled movements would depend upon impulses descending from the Rolandic area to the limbs by the pyramidal tract. The skilled muscular responses, while they continued, would arrest the cycle of events in the digestive system, but would make greater demands on the cycle of respiration. Had we depicted him playing chess we should have had to recognize that the

movement of the pieces (mechanical, unskilled movement) would not have been the true responses to the situations presented by the game. To correlate with the thoughtful deliberation which was behind these movements we should have had to enlarge our scheme of activity in the cortical centres and association fibres.

A bare reference to the events taking place in the nervous system does not give us the complete picture. We claim that our young man listening to the band is physically fit and enjoying life. We have to take into account, not merely the kind of process which is being performed by the nervous system and the locality where it is taking place, but the manner or efficiency of performance. We thus have to consider the conditions which determine this. These are both negative and positive. We will begin with the former. Negative conditions comprise all the circumstances which must be absent in order to allow the positive conditions to take effect without hindrance. Looking at the obvious stimulation and response we require as negative conditions the absence of any interfering noise which would drown the band, or clash with its music. We require the absence of any defect in the receptor, and similarly the absence of fatigue or stiffness in the muscles of the legs or feet. We have claimed that our young man is free from worry, living in the moment, so we must require the absence of the nervous impulses which would be the physiological correlates of ideas of an unpleasant character. We are very ignorant of what these may be. For the internal cycles of events there must be in the same way an absence of interference and hindrance to function. Now we turn to the positive conditions. We said that the band is not only listened to but *is enjoyed*. It is difficult to say just what that last phrase involves physiologically. The nature of the stimulation is certainly important ; there is a difference between music and noise, as we shall see in speaking of " sensation." The relation of the stimulation to previous stimulations is also important. The tune may be one heard many times before and be enjoyed from its familiarity, or the tune may be now heard for the first time and enjoyed as new. In regard to the response we have seen that there must be

an absence of fatigue or defective joints: we may claim, further, that for the required zest in life there must be a good muscular tonus. This involves conditions that are little understood; but possibly the autonomic system is responsible for its maintenance. When we look at the cycles of internal stimulation and response we find that the positive conditions involve the whole organism. In everyday life we often single out one and emphasize the importance of a normally functioning liver for a cheery outlook on life. But as a matter of fact the whole nutritive system is concerned. In our imaginary case we may assume that holiday exercise, good food, fresh air have all contributed to build up positive conditions in the skin, in the blood, and in the muscular tissues, which enable each organ to function normally and efficiently.

When we realize that behind the functioning of the nervous system, determining its efficiency and being in turn determined by it, lie respiration, circulation, digestion, excretion, we shall recognize that the true theatre of stimulation and response is not merely the nervous system but the whole organism.

CHAPTER IV

NATIVE ENDOWMENT AND ENVIRONMENT

AS I stand at the corner of my road I see a small boy of eight or nine, an errand boy to judge from the empty basket slung behind his shoulder, going down the road ; he stops to pick up a stick lying under the chestnut tree, and saunters on beating a sharp tattoo on the fences. He interrupts his performance to kick an empty cigarette case along the path until it collapses and is kickable no longer. When he has passed from view two girls of about fifteen come along in my direction. They might be dressmakers' apprentices. They are arm in arm and bump into one another as they walk. They whisper together, then giggle and duck their heads ; they roll apart, laughing as loudly as the chocolate in their mouths permits. They come together again with a cry of "Do behave yerself!" from one of them. The performance is then repeated *da capo* as they disappear round the corner.

What information can the psychologist give about such behaviour ? Is the behaviour of the boy a necessary response to his environment ? Given the stick, the oak fence, the cigarette case, would all boys of that age behave in the same way ? If so, is it to be explained in terms of his mental nature or in terms of his environment ? Would a boy of sixteen have behaved like that ? Would the girls have picked up the stick or kicked the cigarette case if they had come down the road before him ? Then, the girls, would two other girls of that age and class have walked arm in arm ? Was their giggling, whispering, loud laughter a response to the road, to me, or a reciprocal response to each other ?

Every reader has answers to give to these questions, but the psychologist ought to be able to answer and to justify his answers. He may declare that the behaviour in both cases is typical of the age, sex, and class of the actors. He

ought to be able to show how far it can be explained in terms of the boy or girl, due to the nature of their mental life at that stage of development, and how far in terms of the environment. In studying any stage of mental development the psychologist always has two influences to consider: native endowment and what we call environment. In any given case it is often difficult to assign to each its respective rôle. A person is thus and thus. How much is due to his own potentialities, how much to his environment?

HEREDITY

It was customary at one time to conceive of the mind of the child as a piece of blank paper upon which events wrote what they would. Or, again, the child's mind was likened to a receptacle into which circumstances and whoever it might concern crammed as much or as little as they pleased. Such a view was valuable as a defence against the claim of sanctity for this or that notion as an "innate" idea. It was against the abuse of so-called innate knowledge which could be neither challenged nor proved that John Locke, the father of English psychology, took his stand. In comparing the mind to white paper, void of all characters, without any ideas, he asks, "How comes it to be furnished? Whence comes it by that vast store which the busy and boundless fancy of man has painted on it with an almost endless variety? Whence has it all the materials of reason and knowledge? To this I answer, in one word, from experience" ("An Essay concerning Human Understanding," Book II, 1, 2).

If, however, we accept the biological standpoint for psychology, we cannot ignore the question of heredity. No one would claim that the mind or soul of the child is blank paper in any absolute sense. The mind has its own laws of life and will develop in accordance with its nature. It is active, not passive, as Locke's metaphors suggest. But is this all? The question raised by heredity is, "How far can the course of development be influenced by the lives which have gone before?"

We may first think only of the body. It is recognised that the *inborn* characteristics of the body are handed down from

generation to generation by lineal descent. Further, Mendel's researches (published in 1865, but only brought to the notice of scientists in 1900) have served to throw light on the manner in which alternative characteristics, e.g. eye-colour, grey or brown, possessed by the two progenitors may be expected to appear in successive generations of descendants. The question round which controversy has raged is the transmission of *acquired* characteristics, the transmission, that is, of some feature which the living organism does not possess in virtue of its line of descent but which it itself has acquired during its own life-history. It may be due to some habit of living or to the direct influence of environment, e.g. the muscular development of the arm of the blacksmith, the dwarfing of trees due to a prevalent wind. It has been held by the Darwinian school and by the followers of La Marck (1809) that such acquired characteristics could be inherited by the descendants of the individual who acquired them. This possibility has been denied by the German biologist, Weismann (1885). Weismann held that the organism is the product of the germ plasm of its progenitors, and is unaffected by any change in their bodies. The body contains and nourishes the germ plasm, but is not capable of influencing it by any change which it itself may undergo. Between generation and generation there is direct continuity of germ plasm.

It might seem as if this were a question of actual facts which could be easily settled by careful observation and experiment. But despite many researches the controversy is not at an end. The observations and experiments are beset with difficulties. Much which appears at first sight to be the action of heredity may upon closer examination be equally well attributed to the influence of present habits and environment, e.g. the familiar duck swimming in the farm pond has smaller wing-bones than the wild duck. Does the young farm duck inherit small bones or do his bones attain only a limited size because they are not used for flying ?

We must turn to the question of heredity in mental life. That *inborn* or *racial* traits appear in succeeding generations is no more open to doubt in the case of mind than in the case

of body. Attempts have been made to apply Mendel's law to mental characteristics, but the facts are more complicated, and verification by observation and record is more unreliable.

It may be argued that mind, unlike body, is a new creation in each individual; that it develops in accordance with its nature as mind, and that the explanation of racial characteristics must be sought in terms of environment, tradition, and example.

If the inheritance of racial characteristics is uncertain, the inheritance of acquired characteristics is even more doubtful. In Social Science this question is known as the Nature-Nurture controversy. We have seen that on the bodily side it is not easy to settle this difficulty. Suppose that malnutrition and bad housing render the parents consumptive, and that their child in a few years shows the same disease, has he inherited the disease? The Nature school would say "Yes," the Nurture school would say "No." 'The latter would hold that the child's first environment was the body of the mother, that he came into the world, not diseased, but badly nourished. Lack of good food and healthy surroundings will render such a baby tuberculous in its turn, but it has acquired the disease, not inherited it.' Now look at a similar question in mental life, "Does the child of habitual criminals inherit a criminal trait?" Again, "Does the child of drunken parents inherit a craving for drink?" The difficulty of analysing the complex set of conditions is very great. Just because the parents have acquired the characteristics in question, the environment in which the child grows up will be the very sort of environment to give rise to the characteristic in the child also. Physical conditions, force of example, all that we term "tradition," will favour its acquisition.

Whether the advocates of Nature be right or wrong, the social reformer has the same incentive for his labours. He cannot desist from his efforts to improve environment. If the traits which are acquired can be inherited, he can hinder or help their acquisition, and thus insure the future by taking care of the present. If the traits are not inherited, he can hinder or help their present acquisition, he can build up tradition, where he cannot establish inheritance.

ENDOWMENT

Since the question of psychological inheritance is still an open one, we prefer to speak of native endowment. We do *not* thereby imply that a person from birth has some peculiar tendency or group of tendencies which he has inherited from his forbears. 'Still less do we imply that a person brings into the world with him ready-made ideas, much as a bride may bring jewels in her treasure chest.' We intend the expression to mean that mental life has certain features as its essential characteristics, and that it will, in virtue of its nature, manifest a certain organization. In the case of the human being the psychologist claims to trace out, however roughly, the lines of normal development, the lines which mental life will follow in its growth. But at the same time he recognizes that the co-operation of environment is essential for such development, that it influences the course taken by such development. He has even to recognize that in some cases it would seem as if environment had completely determined the line of development. Yet none the less it is the potentialities of mental life which render such a determination by environment possible. We claim that man in virtue of the essential nature of mental life is capable of becoming aware of a world of persons and things, and of their relations, since he is endowed with sensibility, and, further, is capable of learning and profiting by his sense experiences and their meaning. We will call this "intelligence." The intelligence of an individual may be of a high or of a low degree, but in general character it will be true to type. Man is also endowed with the capacity for experiencing pleasure and pain and for being affected emotionally. Finally, and most characteristically, *qua* mental, man is endowed with activity. He has wants, needs, and impulses, he is for ever striving. It is not an exaggeration to say that from birth to death man is struggling with his environment. Just as men may differ in the degree of their intelligence and in the directions in which it is most clearly manifested, so men differ in their affective and conative capacities. While remaining true to type, they may show varying degrees of susceptibility in feeling and different scales of activity. This

variation in native endowment we refer to as difference in temperament.

ENVIRONMENT

The whole of the world may be said to be environment, but we reserve the term for the more immediate surroundings of an individual. We can at once distinguish physical and social environment. The physical will include all the circumstances which affect the body—food, light, water, soil, and all that is covered by the word "climate." In addition to these more obvious factors of environment we must note such factors as the household surroundings—the tools and instruments of everyday life, furniture, crockery, toys, and, perhaps above all, we must recognize the influence of clothes. The social environment is the personal. Here there are indefinite circles spreading outward from the home circle. There are the family, all the members of the household, whether relatives or not, the neighbours, the members of the set or social class to which the individual belongs, the outer circle of his nation or race and so on. The influence of the different parts of the social environment will be very unequal. In some directions the influence is designed, in others undesigned. Of the sources of designed influence we may name the home circle, the school, the religious body to which the individual belongs, the group with which he associates himself, be it a club, lodge or a union. If the individual belongs to a nation among whom "caste" is important, this must be reckoned as the most important of designed influences. The channels through which environment influences the individual, whether of set design or not, are diverse. Although in essence all social environment is personal, yet such environment may act through material media. This is so both in the case of "tradition" and in the case of "fashion."

By "**tradition**" we mean the influence upon the individual of the lives of past members of the community. The thoughts, feelings, and actions of these past members of the community have been embodied in certain customs and records, and these influence the individual in the present in as far as the community to which he belongs recognizes the customs or records.

Rites, ceremonies, songs, proverbial sayings, moral maxims are handed down from generation to generation, and are thus part of the social environment of the individual. We may recognize the wider field of tradition—that which is common to the race—and the narrower field which belongs to the class or to the family. Just as tradition is the influence of the past, so "fashion" is the influence upon the individual of the thoughts, feelings, and actions of the present members of the community. Whatever is customary in the speech, dress, gesture, gait of the community to which the individual belongs, that mode or custom will influence the individual. The term "**fashion**" in everyday speech carries the implication that the custom in question is temporary; it is not intended to carry that implication here. The word is used for whatever is current, but not traditional, in the community. Convention and etiquette may be partly tradition and partly fashion. Again, old customs which are traditional may be modified by fashion. We called attention in the introduction to the effect of increased facilities of communication in breaking down the barriers between nation and nation, class and class. Does the greater ease of travel, the spread of the printed word, the pictorial representation of the unseen, the broadcasting of the human voice—does each of these means of communication between individuals weaken the force of tradition and fashion? By each of these means of communication the individual is brought into touch with the thoughts and actions of men influenced by traditions and fashions which differ from those of his own community. The field is widened by the inclusion of many sources, and any one line of influence may be weakened, but man does not thereby escape the force of the cognate powers, the world of the past, the world of the present.

We shall see that the individual is moved to activity by situations possessing what we call value. In addition to the values which he himself directly experiences he may also have values suggested to him by the experiences of others, and be moved to activity thereby. **Suggestion** is perhaps one of the most important ways in which his personal environment influences an individual. From the point of view of the

environment we may define suggestion as an exhibition of value. From the standpoint of the experient suggestion is the being affected or moved by this exhibition, either by way of ideas or directly through emotion or impulse. The expression of emotion is one way in which a value may be exhibited by one person to another ; e.g. A may show to B that a given situation has a fear-value which B has not experienced for himself. But A might exhibit the same value by a verbal description conveying certain ideas to B. Or A might exhibit the value by some action : he might place himself before B as a shield. Roughly, we may say that values may be demonstrated by example or by precept. The exhibition may be intentional or unintentional, and the reception may be likewise intentional or unintentional. We can illustrate this by examples of *imitation*, since imitation is one of the clearest manifestations of the force of suggestion. A tennis coach would intentionally exhibit the value of a certain service and the learner would intentionally try to copy the service-stroke. Were the same learner to watch the play of a good champion and try to copy his stroke the suggestion would not be intentionally given, but it would still be intentionally received. A parent may intentionally lead on a child to attempt new feats in playing with a ball by displaying them before him. The child will imitate the performance without any intention of copying a model. The restless, fidgety behaviour of one child may spread like wildfire through a class without any wish that this should be so by the restless child or any knowledge by the class that they are copying fidgety Phil. The reader may be puzzled as to why these instances should be regarded as exhibitions of value. It is hoped that this point will be clearer when we have dealt with primitive value situations.

Sometimes the value by which the individual is moved is not the one designedly exhibited, but one implicated with this as a counterpoise or opposite. This is termed **Contra-suggestion.** To dwell on the naughtiness or even the danger of some act is often the surest way to move a child to attempt the deed. The child receives an incentive to daring, not the intended inhibiting fear. Prohibitions are fraught with

contra-suggestion. "Don't do that!" suggests, "Just try what it is like!" The too persistent or too flaunting exhibition of any given value may set up nausea and drive the individual affected into an opposite course of activity. Frequently the rebellion of the boy or girl against the régime which surrounds him has some of its roots in contra-suggestion. A member of a family in which piety is enforced not wisely but too well may seem to the parents a black sheep on whom neither example nor precept has any influence. The influence may be in reality very great, but it is by way of contra-suggestion.

In suggestion the value suggested may be traditional or fashionable, or it may be the one which is peculiar to the person exhibiting it. In any case, the strength of the suggestion given is relative to the importance of the one who gives it, both as regards his status in the community and as regards his standing with the recipient. The strength of a suggestion also depends upon the frequency with which it is given and the absence of rival suggestions. To a schoolboy "what Smith Major says" is the standard to be followed in all matters of sport. To the newspaper reader what his favourite journal has preached in its leading articles for the last three months becomes a creed.

We shall find that the influence of the social environment in the form of suggestion is of great importance during adolescence, when there is conflict between the primitive values of personal experience and the values recognized by convention, and much perplexity about the standards of conduct. We shall, further, have to recognize that the complexity of the self makes it possible for one aspect of the self to give a suggestion to another aspect of self, auto-suggestion (Chapter XV.)

EXERCISES

1. "There is widely current a vague belief that the national characteristics of the people of any country are in the main innate characters. But there can be no serious question that this popular assumption is erroneous and that national character-

istics, at any rate all those that distinguish the peoples of the European countries, are in the main the expressions of different traditions."

"Social Psychology." McDougall. P. 283–4.

Can you demonstrate this for any striking characteristic of your own people?

2. Indicate how suggestion may be involved in the following:

(*a*) A panic-stricken rush for the doors of a building when the cry "FIRE" is raised.

(*b*) A nurse's exhortation to a boy of six, "Don't be such a cry-baby! That little girl opposite is laughing at you."

(*c*) The vogue of the Lenglen bandeau; the popularity of Charlie Chaplin or Mary Pickford.

(*d*) A calm and confident manner in a nurse or doctor.

3. In what sense can the spirit of any famous school be said to be the heritage of each boy or girl whose name is entered on its roll.

4. What do you consider will be the influence of uniform on the wearer—

(*a*) in the case of a boy in a charitable institution?

(*b*) in the case of a District Messenger boy?

5. Consider why a full page advertisement may be more fruitful than a quarter page one and why it is important to a manufacturer to advertise persistently.

CHAPTER V

PRIMITIVE VALUES

WHETHER one begins the account of mental life by considering the native endowment of the individual on the side of conation and feeling, or whether one begins by the consideration of cognition, one is met by the same difficulty. Each aspect of mental life implies the whole ; one must presuppose cognition if one starts with conation and feeling, and one must presuppose conation and feeling if one starts with cognition. We will consider behaviour from the side of conation and feeling.

REFLEXES

Our survey of the nervous system has shown that the simplest cycle of events therein is the stimulation of an afferent nerve, propagation of this excitation to the nerve centres in the central strand, reflexion to the axon of another neurone, followed by excitation of a motor nerve, which has as its result the contraction of muscle or secretion of gland. This cycle of events in its simple form constitutes what we know as a primitive or unconditioned reflex. If we may parody the situation, the sequence is describable as " Put a penny in the slot and the figure will work." The penny is the stimulus, sound, light, pressure, heat, or chemical change ; the slot (receptor) may be one of the sense organs or special receptacles for stimulation, or it may be afferent nerves ending in the skin, or again those in the interior of the body. The machinery is the central strand of the nervous system, and the working of the figure, the movement in some part of the body. Often this stimulation and this response is an affair to which, so far as we know, there is no counterpart in mental life. There is consciousness neither of the stimulus nor of the response. Much of the economy of our body is conditioned by reflexes of which we have no consciousness

whatever. In other cases the stimulus and the response are experienced. We may be conscious of the tickling in the nostrils to which the sneeze is a response, of the light or pressure to which blinking is a response. Some reflexes are experienced on some occasions and not on others. We are not normally conscious of our glands' response to stimulation, of secretion, but if the conditions either of stimulation or of response vary from the normal we may become conscious of the stimulus or of the response, or of both. The simpler reflexes of the normal human being do not vary from individual to individual. The ability to make a reflex response of this or that character develops as the body develops; consequently the human baby displays his reflex powers in an orderly sequence.

The psychologists whom we have already referred to as "Behaviourists" would have us view all response as in essence reflex. Every bit of conduct is, in their opinion, ultimately traceable to a reflex. This school, as we have said, ignores the experience of the individual whose behaviour is in question. Now, it is just on the ground of experience that the psychologist distinguishes between reflexes and impulsive behaviour, and this is a distinction that we must consider.

If we put ourselves in the position of the subject we see that the experience of a reflex consists in sensation. The stimulus may give rise to sensation, and the movement, the response, may also gives rise to sensation. Take, for example, the blinking of the eye when a bright light is flashed upon us. There is the sensation of light and the muscular sensations of shutting the eye. Or, again, in correcting our balance when we slip there is the sensation of slipping or sliding, organic sensations, and recovery sensations. In none of these reflex experiences is there conation. The response comes directly on the heels of the stimulation without the subject living through any moment of experience which could be described as *wanting* or *endeavouring*. The response does not happen for the subject as the outcome of striving. But it is just the occurrence of such conative experience that justifies the psychologist in marking off as "*impulsive*" certain responses to sense-given situations.

IMPULSIVE BEHAVIOUR IN GENERAL

To a spectator there may seem little or no difference between impulsive and reflex behaviour. Let us take an example of impulsive action in order to illustrate the character of " wanting " or " striving." Suppose yourself in a room on a windy day where there is a draught from an open window to an open door ; a gust of wind occurs and you perceive that the door is swinging to, about to shut with a bang. The sight of the swinging door makes you rush forward to catch it. You no sooner see it begin to move than you spring towards it. Now, wherein does this differ from a reflex action ? May not the spectator say, " There is stimulus and response—that is all " ? If one analyses this example it is easy to see that it is not the sight, as such, that evokes the response. There is nothing in the visual experience set up by a swinging door to evoke the forward spring. It is not the sight, but what the sight signifies or means to the beholder, that calls forth the response. It means a loud noise—past experience has taught this, the noise had a pain value, and now the sight of the swinging door has itself acquired that value and arouses the efforts of avoidance. The sight is meaningful and its meaning gives it value. The bodily rush to the door is the execution of the forward press of avoidance that is mentally experienced. But for the meaning and the value of the sight the situation would have been indifferent to the actor. He would have looked on unmoved at the swinging door. Here, then, we have the characteristic difference between an impulsive and a reflex action. The former requires that the situation should have some value and meaning ; whereas the latter response is made to a situation as a sense stimulus, apart from any meaning or value, apart, indeed, from any experience of the stimulus in some cases. We may regard a reflex response as fixed. It can only be prevented by inhibition, either through a rival reflex which renders its execution impossible or through a strong effort of voluntary control. Let us take another example of impulsive action, the behaviour of a baby who hears the sound of the water being poured into his bath as he is lying on his mother's

lap at bedtime. A spectator at this moment might see very different behaviour in the case of different babies. In the case of one baby he might see the tightening up of the whole body against the mother's supporting arm and lap ; he might hear a protesting cry. In the case of another baby he might see expansive movements, lifting movements of the trunk and kicking of the legs. He would say in the first case, " Baby does not like his bath," and in the second, " Baby loves his bath." The difference in the behaviour prevents us from regarding the responses as reflexes. We should say that here, just as in the example of the swinging door, the sense situation, the sound of the water, has acquired a meaning and value. For the one baby the meaning and value sets up aversion, for the other it sets up appetition. Even the " Behaviourist " would not regard such behaviour as consisting in simple reflexes. He would say that it involves " Conditioned Reflexes," i.e. reflexes in which there has been a transference of response from the situation which originally produced it to another set of circumstances ; e.g. from the immersion in the bath to the sounds of preparation. What the " Behaviourist " finds difficult to explain satisfactorily is the " why " and " wherefore " of such transference. We shall refer to " Conditioned Reflexes " in Chapter VIII.

As our definition of impulsive activity, then, we will give the following : *Impulsive activity* is activity called forth by the value and meaning of sense experience, and as such involves conation and feeling.

INSTINCTIVE IMPULSIVE BEHAVIOUR

Now we have to advance to a more difficult question. In the instances considered the sense experience which evoked the response had acquired its meaning and value from past experiences. Are there situations which have an original or primitive meaning and value ? If we believe in impulsive activity we are bound to answer " Yes " ; otherwise it is impossible to see how impulsive activity could ever come about. It may be claimed that only situations which evoke

the same response in all members of a species have primitive value, or it may be claimed that in addition to these there are situations which have primitive value for the individual. We will begin by considering the primitive meanings and values which are claimed for the species, since these are easier to trace. The responses to these meanings and values are called "instinctive." The situations responded to and the mode of response are characteristic of the species of animal. Thus the crouching, watching posture of a cat is its instinctive response to the mouse-smell situation. All cats will respond in this way to that situation. The response of a terrier to a rabbit hole is equally characteristic of all members of that class of dog. When men speak of an instinct they refer to the organization of mental life by which such-and-such a response is attached to such-and-such a situation. It is our business to see what such an organization implies, and how it is different from that of reflex movement. So long as we keep to the objective standpoint differentiation is impossible. The claim that these actions are impulsive is based on the belief that conation and feeling are involved. For the experient there is striving, a forward thrust from the stimulus sensation. We cannot claim that such situations, when they occur for the first time in an animal's life, have the meaning and value which they come to have later through experience. We cannot claim, for example, that the very first time a kitten comes across the mouse-smell it means a mouse, or a delightful meal, or anything of that sort, as it very well may to the sophisticated old mouser. The kitten has never seen, much less tasted, mouse. But none the less in the presence of that smell there is a wanting, a going forward, of which the crouching and alertness is the objective manifestation. The response is not the sequel to the stimulus sensation, but to the conation which the stimulus sensation sets up. The sensation has a basic meaning and value. We, as psychologists, may label it a smell sensation of such-and-such intensity, such-and-such a quality; but for the kitten it is more than this, it points beyond itself and excites activity. If we say that it is suggestive, we shall be asked, "Of what?" To the kitten, of nothing definite, just of "the coming," of "the about to be."

This is the basic meaning which will grow definite as the " to be about to be " becomes present.

Professor McDougall, to whose writings the present-day emphasis upon instinct is largely due, would say that every instinctive response implied emotion. We will quote his definition of instinct and give his list of the seven specific instincts and emotions which he regards as characteristic of man :" We may, then, define an instinct as an inherited or innate psycho-physical disposition which determines its possessor to perceive, and to pay attention to, objects of a certain class, to experience an emotional excitement of a particular quality upon perceiving such an object, and to act in regard to it in a particular manner, or, at least, to experience an impulse to such action ." (" Social Psychology," p. 25).

Specific Instincts	and their	*Emotions.*
Flight.		Fear.
Repulsion.		Disgust.
Curiosity.		Wonder.
Pugnacity.		Anger.
Self-Abasement.		Negative Self-feeling.
Self-Assertion.		Positive Self-feeling.
Parental Instinct.		Tender Emotion.

Professor McDougall recognizes further four instinctive responses which lack a specific emotional accompaniment ; viz. the instinct of reproduction, the gregarious instinct, the instinct of acquisition, and the constructive instinct.

Professor Drever, who has followed Professor McDougall in stressing the importance of instincts in human behaviour, distinguishes between instinct and appetite. (Dr. McDougall would class them together.) When the stimulus which evokes a response is some condition of the organism itself which is recurrent, and when, further, the response is preceded by a state of " uneasiness," the response is attributed to appetite. Theoretically we may claim that there is no difference in principle between an appetite and an instinct. In both we have a given kind of situation evoking conation ; and we

claim that it does so in virtue of primitive meaning and value, since the sense stimulus points beyond itself. Whether we are prepared to accept such a neat parallelism between instinctive response and emotional experience as that postulated by Professor McDougall is a point that we cannot profitably discuss in this book. We may at least claim that in many instinctive responses the emotional experience is the predominant experience, and that some emotional experience is the common accompaniment of instinctive response. This leaves open the question whether the nature of the emotional experience which accompanies a given instinctive response is always of the same character or whether it may vary. What is certain is that there is the pleasure experience of " satisfaction " at the fulfilment of conative endeavour and " pain " at its frustration or hindrance.

We recognize primitive values, then, common for all members of a species, and we find biologically that the members of any species are equipped for the execution of these responses to primitive values. Biologically, indeed, we might have started from this end of the story : beak and jaws, legs and wings, feathers and fins, hands and eyes ; these implements of action give the clue to the range of performance.

But writers on instinct do not stop at specific instincts and appetites. They would have us recognize, in addition to such definite types of response to definite kinds of value situations, " instinctive general tendencies." These are thus described by Dr. Drever : " All the general tendencies are general in that their arousal is not dependent upon a specific object, situation or idea, and in the behaviour to which they lead, their expression, is as little specific " (" Instinct in Man," p. 218). As instances of such general tendencies Dr. Drever cites : Experimentation, Play, Imitation, Sympathy, Suggestibility. But if we have neither a characteristic response, nor a specific kind of situation or object to which that response is made, it seems better to drop the term " instinct." If we look closely at Dr. Drever's list we shall see that each heading is appropriate to widely differing instances of behaviour. How different are actions which can be described as " play." To run and to shout are as truly " play " as to bounce a ball.

This latter might be just as aptly termed "experimentation"; indeed, most actions can be termed "experimentation." Bouncing a ball may again be an act of imitation. It may be said the nature of the action will depend on the general nature of the situation; but can one say what is the general nature of the situation that leads to experimentation, to play, to imitation? Have we anything comparable with the situation assigned as the occasion for a specific instinct? It seems to the writer wiser to restrict the term "instinctive" to those responses which are specific, the characteristic responses of the species to certain definite situations, and to treat the instances of behaviour which Dr. Drever has in mind, as illustrations of situations having primitive value for the individual. Only by recognizing that each individual, *qua* mind, is endowed with a spontaneous flow of mental activity which can be aroused into conative effort now by this, now by that, shall we be able to represent the richness of mental life and the progress of individual selection. Striving is the natural condition of the human being. We are not in a position to make an exhaustive enumeration of the directions in which this striving may manifest itself. Dr. Drever's list of General Tendencies may represent an attempt to set up such a catalogue, but if the classification is catholic enough in range to serve as a basis for the diversity of mental development—a basis to which all interests and all conduct are to be traced back—then, the classes of instinctive tendencies will become names empty of concrete significance. E.g. the tendency "to seek pleasure and avoid pain," called by Dr. Drever a general appetite tendency, is only a verbal class, a mere label for we know not what, until we can determine the occasions of pleasure and pain for the individual. Neither the occasion nor the response can be characterized in advance.

Since we regard the individual as ever ready to endeavour, to strive, we prefer to regard any situation which evokes such response as one possessed of value, either primitive or acquired. All striving is originally impulsive; the behaviour termed instinctive is predetermined impulsive action, predetermined in the sense that the response is characteristic of the species and of a specific situation. To describe this we may use a

striking simile of Professor McDougall's: "Any object that evokes an instinctive response may be likened to a key that unlocks a door. The key and lock are unlike one another. but they are made for one another; each implies the other and is useless without it. . . . Instinctive activity is normally initiated by an activity of perception, more or less complex; the capacity for this activity is given in the innate constitution of the animal and is as essential a part of the total instinctive disposition (or instinct) as the capacity to execute the train of bodily movements which catch our eye" ("Outline of Psychology," pp. 98, 99).

SELECTIVE ATTENTION

Before leaving this topic of impulsive response to a sense-given situation there is one moment of the total experience that must be looked at in greater detail, viz. the awareness of the situation. From the point of view of the subject or individual experient the situation that evokes a response stands out from the background of other sense experience. In order to express the fact that it alone at the moment has meaning and value we say that it is "selected," or that the individual attends to it, or again that he is interested in it. Whatever language we use, what we wish to imply is that awareness of the sense situation in question is the capital fact of the moment. It is "focal" for the individual; all other awareness is "marginal" or in the background of life. Or, using another metaphor, we speak of this awareness as being "above the threshold" of consciousness, in contrast with other experience "below the threshold" or "subconscious."

All selection or spontaneous attention is accompanied by bodily adjustment. For a sight stimulus the eyes are focused, for the sound the ears are pricked or the head is turned, for smell the inspiratory muscles sniff, the whole body shares in the preparation of fuller sensing. Those bodily adjustments are very important in relation to impulsive action. If we allow ourselves to divide up into phases the whole unit of experience, "being-aware-of-and-responding-to-a-situation," we shall say that these adjustments are not themselves part

of the individual's response, but form part and parcel of his awareness of the meaning and value of the situation. The core of such adjustment responses may be reflex movements, but as the meaning or value is grasped these reflexes are reinforced by impulsive movements of adjustment. These impulsive movements are the outcome of the attentive attitude, for attention is essentially conation.

We may recapitulate the features of native endowment discussed in this chapter in the following table :

1. Reflexes. Responses to stimulation apart from value or meaning.
2. Selective Bodily Adjustments, correlate with attention to a value situation.
3. Impulses (Conation). Responses to a value situation ; either a primitive value experienced in the present or due to the meaning of the situation, acquired through past experience. These values involve the capacity of the individual to experience emotion, pleasure, and pain.
4. Instincts and Appetites. A special group of Impulsive responses characteristic of the species and evoked by specific assignable situations.

ILLUSTRATIONS OF REFLEXES AND OF IMPULSIVE BEHAVIOUR

We will endeavour to bring out the features of impulsive action, instinct, and spontaneous attention, and to illustrate the manner in which reflex actions are dovetailed into impulsive action, by considering some examples of impulsive behaviour. We will begin by quoting extracts from " Notes on the Development of a Child " by Margaret Washburn Shinn :

(i) " It is well established that in the new born infant, the following reactions to light take place :— 1. In all normal infants, on the first day, defensive contractions of iris, lids, and sometimes brows, against bright light. 2. In all normal infants, on the first day or soon after, a general expression and behaviour of contentment in mild light, and sometimes of discontent at its withdrawal. 3. In many infants, on the first day or soon after reflex seeking movements towards the light.

"It is evident that there can be no real seeing of objects without an elaborate system of co-ordinated movements, by which the eye is directed to the object, and over and about it to take cognizance of its form, and the lenses are adjusted to its distance. Of such movements I saw no rudiments in the first fortnight. The eyes rolled about incessantly, . . . they were directed to nothing, followed nothing, dwelt on nothing" (Vol. II, pp. 22, 24).

"Up to the 25th day, though the baby doubtless experienced a certain comfort in lighted surfaces or bright points, there was nothing I could call interest; on that day her former staring at faces assumed an appearance of attention and effort, and a still livelier look was called to her face by a surface of lighted color. . . . From now on her gaze was constantly fixed on our faces as we talked and played with her, sometimes with demonstrations of intensest interest, panting breath, movements of hands and feet, and occasional smiles. How much of this interest was excited by face and how much by voice I cannot say. . . . In the fourth month . . . looking about the room became very absorbing. This looking about, begun early in the second month, had come toward the end of the third to be accompanied by a look of surprise. . . . She would inspect the familiar room for many minutes, looking fixedly at object after object till the whole field of vision was reviewed, then turn her head quickly, and examine another section; when this was done, she would fret till carried to another place, and there renew her inspection of the room in its changed aspect. . . . During these inspections occasionally an object, as sunshine on the carpet, would attract special attention, and even excite to movements of arms and pantings" (Vol. I, pp. 79, 80, quoted by permission of the University of California Press).

The first extract supplies illustration of reflex responses to light stimulation. The contraction of the iris would probably lack any accompaniment in consciousness. If Miss Shinn is right in attributing a pleasure value to the light we cannot regard the "seeking" movements as reflex. It is probable that the movements were reflex and the pleasure a consequence rather than the occasion of them. For the fixation of an object and for following its movement a co-ordinated series of reflexes is needed. Such a complicated response is not given until the twenty-fourth day.

The next extract illustrates attention to a sight-given

situation. The attention is initiated by the co-ordinated reflexes involved in fixation. The reflex is then reinforced by conative effort in " looking." The emotional value of the situation is expressed by the " panting " and the movements of the head and feet. To see the instinctive impulsive response to the situations now presented by sight we must look at the development of the baby's grasping response.

(ii) " She now began (ninth week) to make efforts to get her hands to her mouth. By the tenth week the fists were put to the mouth constantly, usually both at once, and whatever parts of them could get inside were sucked and mumbled. If they were taken away, the baby would carry them back. When her hands closed mechanically on folds of her clothes or the towel as she was wiped, these were carried along with her hands to her mouth and sucked, but there was no conscious attempt to carry objects thither. . . . But though the precedence of the mouth as a grasping organ was quite evident here, the hands in this . . . twelfth week came rapidly to the front in consciousness, and by the end of the week had made visible progress toward grasping. The first sign of this was a trick of clasping, and unclasping the fingers fumblingly on some surface, as one's hand or dress. . . . Objects placed in the hands were held very firmly though not looked at. . . . Here was already developed suddenly a sort of hand-grasping,—the ability to lay hold upon an object when it was *felt* in contact with the hand; but it was nearly a month more before grasping at a visually located object appeared " (*ibid.*, Vol. I, pp. 308, 309, 310).

" At just sixteen weeks old . . . she made a near approach to . . . grasping; she looked at her mother's hand held out to her, and while looking made fumbling motions towards it with her own hand till she struck it, then seized it and tried to carry it to her mouth; and twice again the same day I saw her do this. . . . The 118th day occurred the incident that may be called the first real grasping,—if it is possible to fix the point in such a gradual development. I held the baby up before a picture on the wall, which she was accustomed to look at for some seconds with interest. The light shining on the walnut frame seemed to catch her eye: she looked at it, put out her hand a little uncertainly and waveringly, and first touched then took hold of the edge of the frame. . . . With the beginning of the fifth month there was a perceptible advance in the precision and confidence of grasping,

yet the method remained the same. I watched it carefully: the baby would first put her hand uncertainly out with fingers spread and no appearance or intention to grasp, but looking at the object always; when she had once touched it her motion would become more confident; she would feel about till she had a good grasp, and then take it. . . . At the end of the nineteenth week and in the twentieth there was a wonderful advance in skill and interest in grasping. . . . A record of incessant interest in seizing and handling things. . . . The baby was absorbed in looking and feeling, she desired to look at and touch every object shown her, and others on which her eyes might light. She would stretch both arms out, taking hold on the two sides, and usually draw the object at once toward her mouth. . . . Through the sixth month the baby was eager to get at and touch everything; when carried about the room she would put out her hands continually, wishing to touch, pull, and carry to her mouth every object; she was no longer satisfied simply to watch" (*ibid*, Vol. I, pp. 313, 314, 315, 317, 318, 319).

The first extract shows mouthing or sucking as a reflex response. It is the earliest form of holding an object. The end of the passage calls attention to holding by the hands, a reflex response to contact. There is as yet no co-operation; with sight.

The second extract gives us the main stages in the development of grasping as an instinctive response. Hand movement becomes in the fourth month the reponse to a sight situation. We have already seen from the previous extracts how interest in a sight situation developed. It was in the fourth month that looking became "very absorbing." Attention to the sight-given situation brings about the instinctive action, viz. stretching out the hand for the object seen. From this time onward seeing and grasping go together. "She desired to look at and touch every object shown her." Secing supplies the meaning and value, and grasping is the instinctive response characteristic of the human baby.

(iii) We may quote the following from Miss Shinn's valuable records to illustrate the superposition of impulsive movements upon reflex responses in accordance with the values of individual experience:

" Sundry minor exhibitions of pleasure in the use of her muscles were noted in this second half-year. In the twenty-ninth week, she practised grimacing and sniffing for some days, in evident gaiety. . . . In the thirty-third week, when she was taken under the arms and swung out " (of the bath) " she would lift up her body and legs and straighten her back by sheer muscle (getting help of course from the motion with which she was swung) till she was horizontal, or even till her feet were higher than her head, and would keep the position a second or two. In the same week she lifted with her left hand a valise that weighed four pounds, and held it about ten seconds; then several times immediately afterwards lifted it again and held it for four or five seconds. The feeling of weight in her arms seemed agreeable. . . . With the second year came a period in which, the main race-movements now being acquired, occupations of a more mental sort came to the front, and pictures, language, sights, exploring and satisfying curiosity, overshadowed the simple muscular activities. Many of these more complex occupations, however, involved a great deal of muscular action, so that the child was still perpetually in movement; and in some it was hard to find much motive beyond that of using her muscles. . . . By the latter half of the second year the higher development and variety of the bodily movements now attained had once more made them a source of very considerable pleasure in themselves, apart from the mental interests they opened up. . . . That the child experienced not only pleasure but more or less intellectual interest in muscular sensation, that it was a subject of attention to her,—was apparent from a few indications. . . . In the twenty-seventh month, I note that she is eager to try novel and difficult things; but on the whole there was a disinclination to occupations that taxed her muscular skill; in the thirtieth month, I note avoidance even of those that called merely for muscular exertion without much demand of skill " (*ibid*, Vol. I, pp. 191, 192, 193, 197, 198).

As soon as pleasure is experienced in movement, it is possible for the performance of that movement to be no longer reflex but impulsive. It is response to value, and there is room for much variation with the individual. Miss Shinn's niece found pleasure in grimacing and sniffing, in lifting weight, in mere exercise, and later in whatever called for skill. Such direction of activity will thus vary with the individual and with the

level of development reached in other directions. It falls under our third heading.

(iv) We will next look at an illustration of instinctive response in the insect world, viz. the behaviour of a wasp observed by Mr. and Mrs. Peckham.

"It was on the last day of July that, as we were walking through the bean field, we saw a cloud of fine dust which came spurting up out of the ground like water in a fountain. By watching intently we saw that the cause of the commotion was the rapid action of the legs of some little creature that was almost hidden on the earth, and this proved to be our first example of P. quinquenotatus.

"She was working away as furiously as though she had studied the poets and knew her carpe diem by heart. Faster and faster went the slender little legs; higher and higher rose the jet of dust above her. Then suddenly there was a pause. The burrower had met with some obstacle. A moment more and she came backing out of the hole, her feet slipping on its crumbling edges. In her mandibles she carried a pebble, which was taken to a distance of four or five inches. Then, moving quickly, she swept away the dust that had accumulated near the mouth of the nest, re-entered the hole, and resumed the labor of excavation. . . . Before ten minutes had passed the nest was deep enough for her purposes. . . . The wasp came out, circled round the spot three or four times, and then flew off like a hurricane. . . . Her flight was too rapid to follow, but in a minute we saw her returning. She was carrying a spider; a good sized specimen of Epeira strix, which she had evidently deposited somewhere in the neighbourhood before beginning to dig. Then seizing it by one leg, she dragged it, going backward herself, into the nest. She remained hidden for about two minutes, then reappeared, and, seeming to be in as great a hurry as ever, filled the hole with dirt. . . . Hither and thither she rushed, now bringing little pellets of earth and placing them above the nest, now sweeping away the loose dust which might suggest the presence of the cache, and now tugging frantically at a stone which she wanted to place over the hidden treasure, but which was too deeply embedded in the earth to yield to her efforts. . . . We have never seen the spider captured and do not know where the sting is given, but certainly this wasp wounds her prey very severely. . . . The next stage in her proceedings we are familiar with, as we have

frequently seen the wasp carry the spider. . . . A suitable place for the nest being found, the spider is very prettily taken care of while the work is in progress. A plant, usually a bean or sorrel is chosen, and the strix is hung in the crotch of a branching stem where it will be safe from the depredations of ants. . . . The next point is to decide upon the precise spot for the nest, and here our wasp shows herself uncertain and hard to please. Never have we seen one settle down in the spot first chosen.

(Peckham: "Wasps, Social and Solitary," pp. 198, 199, 204.)

To obtain the story of the wasp's behaviour in its right order we must begin with the stinging of the spider; this is followed by the transportation of the wounded insect to the neighbourhood suitable for a nest. Then comes the making of the nest, the dragging down of the future larva's food, the laying of the egg, and, finally, the closure of the nest. How are we to distinguish here between reflex responses to stimulation and instinctive activity? We are always in danger of reading in too much when we study animal behaviour, and our analysis is at best inferential. I should conceive of the wasp's search for its prey as appetitive, the outcome of organic need. The stinging may be a reflex response to the contact with the spider's body. The flight would be reflex in so far as the movements are concerned, but it is used in the service of the instinctive striving which impels towards the making of the nest and oviposition. The action of the mandibles in digging are reflex response to the stimulation of the earth—so too is the arrest of action by the obstacle; but the removal of this obstacle would seem to point to the driving power of instinctive need behind the whole process of burrowing. The interment of the spider seems likewise to indicate appetitive activity, culminating in oviposition. The final tidying of the ground, like the original digging, would seem to imply a conative effort carried through to completion; although the particular movements considered separately may be reflex in character, determined by the nature of the soil. In support of this analysis we may bring forward other points of behaviour noticed by Mr. and Mrs. Peckham. In the first place, there is evidence of meaning in the situation which arouses seizure of prey. The wasp "Pomilus quinquenotatus has a decided

preference as to the spider that she takes. . . . In more than fifty examples the victim in the play was invariably Epeira strix." In Professor McDougall's language, *Epeira strix* is " the key." There would seem to be some seeking involved in the nest burrowing; not every digging gives satisfaction. " In one instance eight nests were started." Mr. and Mrs. Peckham tried the effect of substituting a different spider for the wounded spider deposited by the wasp prior to her digging. " According to the habit of its species when danger threatens, it kept perfectly quiet and when the wasp returned it was hanging there as motionless as a piece of dead matter. How she knew the difference was a mystery, but she would not touch it." Such rejection would seem to imply meaning and value; it might possibly be regarded as failure of a reflex in absence of stimulation. The hunting round which ensued would, however, give a strong probability that the failure to pick up the prey was not just the failure of a reflex in absence of a stimulus, but a rejection determined by the meaning and value of the given. Of a similar character is the rejection of any hole other than the prepared place of interment. " We once saw a wasp of this species digging her nest on the Bembex field. When finished it was a large hole which could not have been distinguished from those of spinolæ, which were open all about, the weather being bright and sunny. She flew off, and soon reappeared with her spider, which was dropped three feet away while she ran to make sure that all was right; and now followed something that we had never seen before—she could not find her nest. She flew, she ran, she scurried here and there, but she had utterly lost track of it. . . . At last, however, she made up her mind that all further search was hopeless and that she must start afresh; and forty minutes from the time that we saw her first she began a new nest close to the spider, as though she would run no more risks " (*ibid.*, pp. 214, 215). Mr. and Mrs. Peckham may use language which seems to attribute a too human attitude to the insects, but as faithful recorders of the *actual behaviour* of the wasps studied they are above criticism. They were unable to find any value likely to impel the careful restoration of the surface disturbed by digging. Red ants destroy the

hidden treasure of the nest if they find it; "but they seem to find the spider by burrowing beneath the surface so that the elaborate hiding of the nest from above cannot be meant as a protection from them."

EXERCISES

1. Point out the primitive and the acquired values in the incidents described below:

(*a*) "From such a nest, near the top of a tall white pine. . . . I obtained two young grey squirrels. . . . It was evident that they had never ventured so far as the outside of their nest; and up to that time they certainly could have had no opportunity of making the acquaintance of the ground. . . . I gave them one day some hickory-nuts, one of the staple articles of diet of an adult grey squirrel whose powerful teeth take but a few moments to penetrate the thick, hard shells. They examined the nuts attentively, evidently looking upon them as unusually interesting novelties, and at last the more enterprising of the two set to work on a nut, as if he wished to find out what prize it might contain. With hitherto unexampled patience he laboured over it, until at last, after more than half an hour's diligent gnawing, he gained access to the kernel. With a few days' practice they acquired skill and speed in extracting these hard-shelled delicacies; and after that they lost all interest in such things as biscuits, and hickory-nuts formed the principal item of their bill of fare. . . . Many a time I saw one or the other of them take a nut, when there were more than he could eat, look about the room until he found a suitable place, then put the nut down on the carpet in some sheltered corner of the carved foot of a bureau. He would press the nut down on the carpet, and then go through all the motions of patting the earth over it, after which he went about his business as if that nut were safely buried" (Observations of Mr. C. F. Batchelder quoted by Professor L. Morgan: "Habit and Instinct," pp. 121, 122, 123).

(*b*) "On April 10 the apparatus was painted white in order to increase the lightness and thus render it easier for the experimenter to observe the animal's movements, and when on April 12 Skirll" (a monkey) "was again introduced to it for further preliminary training, he utterly refused to enter the boxes, giving every indication of extreme fear of the white floors and even of the sides of the boxes. Finally the attempts to induce him to enter the

boxes had to be given up, and he was returned to his cage unfed. The following day I was equally unsuccessful in either driving or tempting him with food into the apparatus. But on April 14, he was so hungry that he was finally lured in by the use of food. . . . As the matter was of prime importance for the success of my work, I inquired of Doctor Hamilton and of the men in charge of the cages, for any incident which might account for this peculiar behavior, and I learned that some three months earlier, while the animal cages were being whitewashed, Skirll had jumped at one of the laborers, who was applying a brush to the framework of one of the cages and had shaken some lime into his eyes. He was greatly frightened and enraged. Evidently he experienced extreme discomfort, if not acute pain " (Yerkes : " Mental Life of Monkeys and Apes," pp. 21, 22).

2. Analyse the following with reference to the nature of the responses to environment which it describes :

(*a*) " One of the earliest signs of anger I ever detected in the baby,—a tone of temper in crying,—was on occasion of an extra dressing one day, at eleven months old ; and thereafter whenever she cried over being dressed there was the same slight tone of temper. There quickly appeared now a resentment against muscular restraint of any sort ; to be held still in order to have her clothes arranged, to be kept fastened in her high chair . . . when she wished to get away, caused angry crying and efforts to escape, almost the only signs of temper she ever showed at this period. I note squealing, stiffening, and wriggling, in protest against being taken or held, as late as the nineteenth month, and it is my impression that it lasted considerably longer " (Shinn : " Notes of the Development of a Child," Vol. I, p. 185).

(*b*) " I noticed at this time—forty-first week—an intangible but great increase in the baby's appearance of comprehension and mental alertness. An increasing desire of exploring was becoming apparent. Before this she had investigated objects as they came in her way, now she began to have a passion (which lasted and increased for weeks and months) to go and find what there was to see. Her creeping, which steadily increased in speed and distance, was now . . . utilized to satisfy her curiosity. . . . On the lawn, she would leave her blanket and make for the edge of the grass to finger the gravel of the walk, or feel over the bark of the trees. She crept into the hall and explored it, sitting down in each corner to survey it, and looking up at the walls " (*ibid.*, Vol. I, p. 347).

CHAPTER VI

SENSATION, THE BASIS OF COGNITION

IN a genetic study of mental life one needs to form some conception of the simplest cognitional experience from which arises the awareness characteristic of what is termed the " perceptual level " of mental life, i.e. the level whereat there is awareness of, and response to, objects in the sense world : chairs, tables, trees, etc. We are unable to consider impulsive behaviour in detail without such a study of sense experience. The individual does not start with a knowledge of a world of things and people surrounding him. It is only by degrees that he comes to be aware of " things " and " persons." It is only by degrees that this sight and that sound or that smell and that taste means a definite sense situation—means, for example, warmth, satisfaction of hunger, or relief from discomfort. It is only by degrees that " this " means " bath " or " bottle." It is only by degrees that the definite values of such experiences stand out as pleasant or fearful or irritating or painful. The cognitive and affective aspects of experience have none of the distinctness which the psychologist must assume for purposes of description.

The simplest cognitional experiences that we can conceive are the events termed sensations. We can best define these by means of the corresponding physiological event. Whenever a sense organ is stimulated and the excitation set up in an afferent nerve is propagated to the central cells in the cerebral hemispheres, we have a sensation. As adults it is nearly impossible for us to realize the experience in question. Our sense experience is overlaid with interpretative and thought processes, e.g. when light stimulates the eye we see some thing. Even if we see what we call a patch of green, it is not just the experience of green, but the awareness of a green something—a patch out there on the left, or yonder.

But by the term "sensation" we want to denote just the sense event, apart from the interpretation that we put on it. The event is sensation, its function or work is cognition. It is thus an abstraction, unknown to us in actual life. The nearest approach to sensations is what we experience when we are drowsy or when we are interested in something else and sense impressions are experienced without being attended to. One can in these circumstances realize that one has had unheeded and *almost* meaningless experiences of sight or sound, e.g. one is absorbed in a book and comes out of the story to realize that one has received sound experiences, unheeded at the time, but now interpreted as meaning the return to the house of some member of the household, or as rain on the window. Perhaps our organic experiences come nearer to true sensations that any others.

CLASSIFICATION OF SENSATIONS

In trying to classify sensations we can select, in the first instance, all the experiences which are connected with a special sense organ or receptor on the periphery of the body. These are the five senses: Touching, Hearing, Seeing, Tasting. Smelling. As we have seen, Seeing and Smelling have afferent nerves, which run direct from sense organ to brain, Seeing and Smelling are connected with mid and fore brain respectively. Tasting and Hearing with the medulla. Touch is connected with receptors all over the surface of the body, the afferent fibres from which run into the spinal cord. Sight, Hearing, and Smelling can receive stimulation from a distance, hence the term Distance Receptors used for the sense organs in these cases. Besides these special senses we have the sensations which arise in connexion with sensory receptors and afferent nerve fibres in the interior of the body. We may notice first the wide class of pains, e.g. headache, back-ache, toothache. There are the sensations connected with the alimentary canal: hunger, thirst, nausea. There are the sensations from the bowels, the bladder, genital organs; there are the sensations connected with bodily weariness, with general ill-being, and with general well-being, massed

organic experiences which it is hard to analyse. All these experiences are called Organic Sensations. These sensations, which are not so overlaid with interpretation as the special sensations of the five senses, give us a better understanding of the nature of sensation than those by which we are aware of the external world. We have to include in the list of sensations all those experiences which are connected with movement and the maintenance of position or posture—Kinæsthetic Sensations. These are due to proprioceptive stimulation of receptors (*a*) in the joints, (*b*) in muscles and their tendons.

In regard to any sensation we can distinguish between the Quality and the Intensity of the sensation. By Quality we mean the character of the sensation. Broadly speaking, every group of sensations has its own character. Sight experiences are quite different from experiences of Hearing, and both again from Touch or Taste or Smell. In addition to the class character we recognize the specific qualities; e.g. within the class Sight there are the different colour experiences; within Hearing, different sounds, musical and otherwise (noise), differences of pitch, differences of character. By Intensity we understand the strength of a sensation experience. Two sounds may be different in loudness; this is a difference in the strength or intensity. In the case of Seeing and Touching we can recognize an aspect of experience which is termed Extensity or Bigness. Two Touch sensations may be alike in quality, equally smooth, both equal in strength, but the one may be bigger than the other. Again, if one were in a dark room and red lamps were turned on behind two panes of glass different in extent, the two patches of light might give us sensations of red which were alike in quality and intensity, but the one would give us a bigger or more massive sensation experience than the other. Sight and Touch are the only two classes of sensation which seem to possess this attribute of bigness. We sometimes speak as though we experienced big and little sounds; but when we analyse what we mean by this, we find that the words "big" and "little" are used metaphorically to express some feature in the quality of the sound, not its spread, as in Sight or

Touch. An organ note, as compared with a note of the same pitch on a violin, is "big." But by this we either mean that the timbre is different or that the organ note sets up somatic resonance, i.e. organic sensations, and thereby seems more massive.

We will now enumerate the chief qualities of sensation with reference to the awareness yielded by the experiences.

TOUCH

The term signifies Cutaneous sensations. The chief varieties are:

(*a*) **Contact.**—This is experienced whenever the nerve endings in the skin are stimulated by contact with an external body, e.g. by contact with a surface, such as paper or velvet, or by light contact with a point, such as a pencil. In the hairy parts of the body, the hairs act as levers to the nerve endings in the skin. Movement of a hair will occasion a contact sensation, touch, in the strict sense of the term.

(*b*) **Heat and Cold.**—These sensations are aroused by punctate stimulation on the skin and also by contact with surfaces. In addition to heat and cold spots on the skin there would seem to be a system of nerve endings which respond only to warm and cool stimuli and require "areal" as distinct from "punctate" stimulation.

(*c*) **Pressure.**—When nerve endings located in the deeper layers of structure under the skin are stimulated there arises the sensation of pressure; e.g. if the edge of a paper-knife were laid lightly on the arm, there would result the sensation of contact, which would have a certain bigness or massiveness; if the knife were forced against the arm there would arise, in addition, the experience of pressure and the extensity of the sensation would seem greater. Pressure is an experience which is not confined to stimulation through the skin, but may arise from stimulation within the organism.

(*d*) **Pain.**—There are on the skin spots which, like heat and cold spots, give rise to sensation when stimulated. The sensations may be called pain or prick sensations and are regarded as quite distinct in character from contact sensations.

The nerve endings for pain are likewise considered specific. It is perhaps hardly necessary to remind the reader of the difference between the use of the term "pain" in this sense and its use with reference to feeling. (See p. 15. Prick or pain is one of the class of sensations covered by the term "pains.")

For our knowledge of the things in the external world and for the knowledge of our own bodies these cutaneous experiences are very important. This is more obviously the case when they are joined with muscular experiences in what is termed "*Active Touch.*" The experience of handling an object, moving the limbs over a surface, or clasping an object is a combination of cutaneous sensations and of the muscular sensations which accompany movement. It is from these experiences that the "primary" qualities of objects, as the philosophers called them, are learned: weight, form, (shape) size, consistency.

The localization of touch experience on his own body, and the discrimination of one touch from another, are important in helping the child to build up his knowledge of his body as a thing in space; while the findings of Active Touch teach the differences of far and near, here and there, between this and that, behind, beyond, in front of, beside this or that.

SIGHT

There are two distinguishable types of visual experience, light and colour. Under light we include all experiences from darkness—which we may label "blackness," for the sake of simplicity—to dazzling light or "whiteness." Between these two extremes of sensation we have a series of "grey" sensations. Were we totally colour blind, as some persons are, these experiences would constitute our all; probably they do constitute the visual experiences of many animals. These sensations are to be regarded as more primitive than those of colour.

Under colour sensations we have to distinguish pure colours and impure colours. The so-called pure, or "saturated," colours are experienced when the sense cells in the retina are

stimulated by rays of light of approximately one rate of vibration and of moderate intensity. This happens when a beam of white light from the sun or a lamp is analysed or split by passing through some diffracting or refracting medium, such as a prism. The individual under these conditions sees the rainbow or spectrum colours, which range from red through orange, yellow, green, blue, to violet. Pure colours are also experienced when all light, except that of some particular vibration rate, is absorbed by reason of the surface from which white light is reflected. A surface suitably dyed may thus give rise to a sensation of spectrum red or spectrum blue, etc. The impure colours are experienced when the spectrum colours are mixed with the black-white series. From this mixture of colour with "grey" arise all the tints and shades of colour: pink, brown, mauve, sage green, reseda, straw, mole, nigger, etc. Nearly all coloured surfaces reflect to us impure colours, for few are so constituted as to reflect only one range of vibration rates and thus give us pure or saturated colour.

The importance of colour for knowledge of objects is very great, although not so great as that of form. Colour may become the mark of "this" or "that," the distinguishing feature between one thing and another. Its importance is not restricted to "meanings," since colours form the basis for æsthetic "values."

Just as in the case of touch, we have to recognize the combination of seeing with movement experiences. The eyes are moving bodies, and the sensation of the movements —right and left, up and down, rolling inward, rolling outward —constitute, with the visual sensations, "*Active Sight.*" To follow an object with the eyes, to move the eyes over its contours, gives, just as the handling of the object gives, the experience which leads to knowledge of form, size. We have to distinguish what is styled "apparent" size, "apparent" shape, from real size, real shape. The distinction is between the knowledge gained from the eyes alone and the knowledge gained from the eyes checked by that of the hands or any other medium of active touch. The visual experience received while an object is being handled may vary. As it is turned

this way or that, it looks now round, now oval, now larger, now smaller, but the hands tell the same story of shape and size whatever the eyes may say. This experience gained through movement and touch is taken as the standard. It is the touchstone of all sense knowledge. Qua sense knowledge the knowledge given through sight is not less actual or genuine than that given by touch, but in contrast with the latter as standard it is termed knowledge of the *apparent* size or the *apparent* shape. Like Active Touch, Active Sight gives us knowledge of the position of objects in the space world, both in relation to our bodies and in relation to one another. Eyes and limbs work together in their exploration of the physical environment. Very important in this exploration is the co-operation of the two eyes. The appearance of solidity or of relief is dependent upon this co-operation of the two eyes. Each receives a slightly different stimulation from the same object (the object is seen from two slightly different points of view), but the two different stimulations combine to give what we may term a stereoscopic effect in vision. We saw from Miss Shinn's record that it was the development of this co-ordinated vision which was the condition precedent for intelligent " looking " on the part of the baby; and it was such looking which called out the grasping response. From that time forward hands and eyes tell one combined story. Whenever there is any discrepancy between present vision and past tactual experience, tactual experience is the accepted meaning. A table for me may look elliptical, but I say, " I *see* it to be round," i.e. I interpret seeing in terms of touch.

We said colour was a basis for æsthetic experience, so too is the experience of visual form and size by Active Sight.

HEARING

The chief qualities here are those of noise and music. Noises differ from one another, but it is difficult to give any classification of them. One only arrives at a list which has no claim to be exhaustive. Cracking, splitting, rapping, scratching, scraping, and so on, and so on. These particular

names of noises are all names of the actions which give rise to the noises. When we try to name noises we discover that for the noises, as such, we have no names in the sense in which we have colour names—red, green. What, then, is the characteristic of noise in virtue of which we distinguish between noise and musical sound? A noise has no unitary quality. It lacks that smooth unbroken wholeness which characterizes the musical sensation. Physically the stimulus for noise is an air wave of non-periodic vibration; whereas the stimulus for a musical sound is a wave of periodic vibration, i.e. vibration which possesses regularity of form recurring in definite periods. No matter how short the duration of a noise, it will appear to us as lacking unity of quality. A musical sound, e.g. a chord, may have many components, which we are able to detect within the whole sound, but none the less the chord, as such, is a unity and has a singleness of character. All sound sensations may have different degrees of intensity, loudness, and softness. Musical sounds differ from one another not only in intensity but also in pitch-quality and in timbre. The notes of a scale differ from one another in pitch; the same notes produced by a violin and a piano differ in timbre; the same notes produced now loudly, now softly, differ in intensity. No class of sensations has a greater range of quality and at the same time a more adequate system of classification and nomenclature. It is possible by means of musical notation for one person to communicate to another precisely what quality of sound they wish to indicate. In order to achieve the same result in colour it would be necessary to show a specimen of the colour quality in question. Noise and musical tone are often combined in a complex sensation experience; e.g. in the sound of the ascending or descending lift at the Underground stations one may detect amid the broken noise factors a musical note. The totality of sound has no unitary character, but it contains within itself a musical unit.

For knowledge of the external world sound is less important than colour. But for communication with our fellows sound is all important, being the foundation of our language. The expressive signs used by us are based on speech sounds,

whether the language be written or be reduced to any kind of code. When deafness is judged to be a greater affliction than blindness, it is the loss of this communication with our fellow-creatures that turns the scale.

Sound, like colour and form, is one of the sources of æsthetic enjoyment, and in estimating its importance for our life this aspect of value must be given due weight.

TASTE AND SMELL

These are usually classed as lower, in contrast to the foregoing as higher, senses. Man learns little about his world from either of these senses. They are important for man, and even more so for animals, in relation to food. We may regard them as safeguards for the digestive system. For man living in an advanced state of civilization this function of taste and smell may be obscured, but even the epicure with acquired tastes cannot pass the barrier of certain sensations. In animal behaviour we can see more clearly the rôle of smell and taste as a guide to the wholesome and unwholesome. It is probable that an animal's world is very largely interpreted in terms of smell. It would appear to be the distinguishing feature by which objects are recognized. It is of the greatest importance in relation to many instinctive responses, both those which concern the hunting of prey and those which concern the reproduction of the species.

The range of quality in these sensations is very limited. Taste has four or possibly five qualities: sweet, sour, bitter, salt, and alkaline. As there is communication between the nasal passages and the throat, Taste proper is complicated with Smell. It is also combined with Touch. A "dry" or an "oily" wine owes part of its characteristic "flavour" to touch. Smell has qualities which it is difficult to classify. Language is lacking in terms descriptive of smell qualities. There are the terms "odorous," "pungent," and "malodorous." The last of this trio is not so much descriptive of smell as of its value for us. Such terms as "sickly," "heavy," "æthereal" describe the organic experiences accompanying the smell, rather than the smell itself. For the most part

we fall back on the name of the object possessing the smell in question, e.g. fishy, tarry, flowery. When, then, we try to classify smells according to quality we find ourselves classifying them according to their affective value, or according to the type of object which has the smell in question. This absence of definite character, easily identifiable by a descriptive name, is a significant index to the relatively unimportant part which smell plays in our knowledge of the external world.

KINÆSTHETIC OR MUSCULAR SENSATIONS

These sensations, unlike those of the five senses, are not connected with any sense organ at the periphery of the body. As we have seen, they arise from proprioceptive stimulation within the body. The term muscular sensations covers sensations which are connected with the stimulation of nerve endings in the joints, in the tendons, and in the muscles themselves. These sensations are concerned with the maintenance of position and movement. We have no descriptive names for their qualities, but it is important to notice that the experience of moving a limb in any direction has a specific character that varies with the direction. Up, down, to the right, to the left are movements of head or arm or leg which have each their own character. Very important in its spatial significance is the fact that movement gives a series of sensations, not a single sensation, and that this series is invariable in the relation of its members to one another. For example, if a, b, c, d represent the series of sensations occurring in moving the arm to the right, the order of a, b, c, d is invariable : b must occur in its place between a and c. The ordering of the muscular series serves to introduce order into any series of touch experiences which are associated with the movement series. The touch x which accompanies b must likewise be ordered in relation to the touches p and q accompanying a and c. x is between p and q, x is to the right of p. etc. Such ordering of position is essential for the knowledge of spatial relations. On this score, if on no other, we should be entitled to rank muscular sensations highly ; they are indispensable for our knowledge of the external world.

EXERCISES

1. Mark out a square, say 1½ inches, on the inner surface of the arm above the wrist; then ask a friend to explore this region systematically with a lead pencil, putting the pencil down lightly as evenly as possible, in a series of points—

• • • •
• • • •
• • • •

Do not watch the process, but attend to your sensations. The contact will be felt each time, but three or four of the contacts may spring out as "*cold*." If the temperature of the lead of the pencil can be lowered by immersion in very cold water or exposure to cold air, the cold spots may be found more easily. The same process might be repeated for the discovery of "heat" spots, using a thick steel knitting-needle which has been heated by immersion in hot water. The needle should be held with a cloth to prevent too rapid cooling. After a short pause the same area might be explored with a fairly stiff bristle from a clothes-brush to discover the points where contact is replaced by "prick" or "pain." If in the place of the stiff bristle a very weak one is used, it will be possible to differentiate between points where there is a sensation of contact and those where there is no sensation at all.

2. As you sit in the dusk some evening, notice the disappearance of colour from objects. Do you find yourself in a world of "greys"? If you have two books bound respectively in covers of red and blue, which seem to you equally bright by daylight, notice which retains its colour longer as the dusk sets in?

3. Mount a disk of coloured paper a quarter of an inch in diameter in centre of a post card which has been blackened with Indian ink. Make four such cards having respectively disks of red, green, blue, and yellow. Choose the colours so that they seem to you equally bright. Seat yourself and close one eye while keeping the other fixed on some point directly in front. Let a friend hold one of the cards about two feet from the open-eye side of your head at eye level, and move it gradually forward, following a quadrant from immediately behind the ears to the nose. Notice the point at which you can see that there is a lighter patch on the card, and the point at which you can recognize the colour of the patch. Try this for each card.

In experiments 2 and 3 you are able to experience "*rod*" vision, i.e. to have sensations of *light* as distinct from colour. These more primitive sensations are connected with the stimulation of structures called rods, which are present in the periphery of the retina and which function in twilight. Colour sensations are connected with the stimulation of retinal cells called cones. These cells are only found in the central region of the retina. This is why you recognize the coloured patch as coloured only when it is in front of you.

4. If you can obtain a prism (a lustre from an old-fashioned glass chandelier serves admirably) observe the pure spectrum colours and compare their fulness of colour with the colours of everyday objects.

5. Collect two dozen objects possessing a definite scent, such as camphor, tobacco, rubber, turpentine, cloves, flowers, vinegar, fish. Try to make some classification of these, grouping together any smells which have a common character, and then finally arranging the groups according to their similarity.

6. Listen to everyday sounds and try to discriminate between "tones" and "noises."

7. Take up a matchbox, hold it in front of you with the striking surface parallel to the eyes. Move it to the right, to the left. Do this at eye level, then above, then below eye level. Perform these movements with the matchbox held close to you and with the box at arm's length. Record all the changes in shape and size of the sides which you see during the operation.

Repeat the movements, but run the index finger of your free hand along the edges of the box in each of its terminal positions. Compare the story of shape and size told by the eyes with that told by the finger.

CHAPTER VII

THE FUNDAMENTAL PROCESSES OF INTELLECTUAL GROWTH

WE have considered the experiences which form the basis of all conduct and knowledge; we must now consider those features of mental life which render "learning by experience" and intellectual growth possible. These are what Professor Sully termed "Processes of Elaboration." In the sense that without them development is impossible, they are included in what we have called native endowment. The processes are: Retention and Attention, including the power to resolve totalities by selection of parts (Selection), and to form wholes by progressive continuity of function (Integration), Consciousness of Likeness, and Consciousness of Difference.

As psychologists we have described and classified sense experience according to the features which we as adults are now able to distinguish in such experience; but we must remember that the distinctions of class and quality which we have laid down are not appreciated by the child set in what Professor James has termed "one big blooming buzzing Confusion. That Confusion is the baby's universe; and the universe of all of us is still to a great extent such a Confusion, potentially resolvable, and demanding to be solved, but not actually resolved, into parts" (James: "Textbook of Psychology," p. 16).

RETENTION AND ATTENTION. SELECTION AND INTEGRATION

Any experience in mental life owes something to past experience; it is what it is in virtue of past experience. We know of no absolute beginning in mental life. Past experience is to be thought of as a determinant for the nature of present knowing and feeling and doing. Past experience which

determines present experience is said to be "retained." **Retention,** or, more correctly, retentiveness is, then, the name for that general character of mental life in virtue of which past experience is a determinant of present knowing, feeling, and doing.

The fact itself no one doubts or disputes. It is, indeed, such a familiar truth that we hardly grasp its inner significance. That sound means to us the departure of a train, that patch of colour means a rose-tree. But the sound and the sight owe their significance to past experience. All this is trite enough, but one has to look at the fact more closely to see what it involves.

It is obvious that we could not learn by experience or develop in any way, if the moment after its acquisition each gain were to slide away into nothingness. Retention is necessary for any kind of learning or progress. What is not quite so obvious is that retention is necessary for mental life itself. We often use the metaphor of a stream in describing consciousness, and such a metaphor serves to bring out the continuity and uninterrupted flow of mental processes. Continuity implies the interpenetration of every moment of life by the previous moments. It is impossible to conceive of "life" as a series of discrete "nows." All our attempts to single out moments of life for observation and analysis will be artificial if we try to think of the moment as detached from what came "before" and what will follow "after."

We have spoken in an earlier chapter of the uniqueness of each mental life, of how impossible it is to study any concrete experience except as the experience of a given individual. It is my past which colours this event to me. It is into your stream that this event enters for you. To appreciate the meaning or the value of any event for an individual we must bear this in mind.

We may consider the different ways in which the influence of the past on the present is manifested. We may begin by considering the colouring of the present by the immediate past. As an illustration, take the case of listening to music or to reading aloud. While the present sounds are being heard the past sounds are influential; otherwise one could

never comprehend the force of a sentence or hear a melody. The same sound, note, or word in a different setting has an altogether different meaning and different value. Again, if we consider any chain of actions we shall see it is the influence of the immediate past which gives some of its significance to the present member of the chain. If we are interrupted in some serial performance we may find it impossible to go on where we left off. To get into the swing we have to go back to the beginning of the performance. Divorced from its context the moment carries no significance and no impulsive value. We shall find this is the case with actions of the impulsive type and with actions which have become automatic. Such series exhibit what is termed a **cumulative disposition.** The nearer any such series is to termination the more the weight of the preceding actions seems to determine those to come. The pianist may run over a given passage up to a certain point, and the nearer this point is to the termination of a given rhythm or melody the more the playing of the ending seems imperative. So with a quotation, the familiar words seem to determine the coming phrase.

When there is frequent repetition of a series of actions, **habit** arises. Once started, the train of experiences runs on automatically, each step bringing about its successor, just as a spark runs along a train of gunpowder. Each repetition of the series makes the whole cumulative disposition of the series stronger, until, of a truth, the train runs itself. Words that we repeat by heart with scarcely a thought of their meaning, actions which are almost unconscious, are witness to this. The sight of our front door may lead to the production of the latchkey, its insertion in the lock, the opening and closing of the door, and the return of the key to our pocket, while our thoughts all the time are absorbed in some other topic.

In habit the influence of the past experience is shown in a twofold manner: the past performance makes the present performance more mechanical and easier, and each member of the present series determines the next coming member.

Acquired Meaning and Value.—So much for action. Now to look at knowledge. The influence of past experience is

seen wherever present meaning is enriched, or present value is determined, by experience of a previous occasion. Men and animals learn by experience, even when we cannot credit them with memory proper, i.e. with recall of the past incident. In the beginning of life the organic needs of the individual are very important. The sight or touch which the baby experienced when his hunger was satisfied did not originally mean or stand for satisfaction. But very soon sights and contacts come to be so bound up with that satisfaction of hunger that they can serve as a sign for it. A part stands for the rest of the whole into which it has entered. Thus the sight of the feeding bottle will still the cry and excite the eager activity of the baby. The sight has acquired a meaning and a value with reference to the satisfaction of hunger ; it stands for more than it itself is. To take our previous example of water being poured into his bath, the sound has acquired its meaning from the baby's past experience in the bath. It will set him crowing and wriggling or crying and shrinking according to the meaning and value it has acquired in past experience. It is a nice sound or a nasty sound and means this or that experience in the present because of the past. Experiences are thus " representative " ; they stand for more than they are as present experiences. One must here emphasize the point that there is no discrimination by the experient between what is given in sense and the meaning or the value which is due to the past. The psychologist can analyse the situation and say the meaning or value of " this " in the present is due to past experiences, but to the experient the meaning and value all lie in the given present. There is at this level of development no recall of the past incident, no reference back to the past as such. We must not imagine the young child going through any process of analysis by which he recognizes (*a*) sign and (*b*) signification of the sign. There is nothing to correspond with such a thought as, " Ah, x, that means feeding time," or " z, that means a horrible bath." To the young child, as to the animal, the sound or sight or whatever sense situation is given simply brings the awareness and the impulse. It owes its meaning to past experience, but this meaning is borne by the present situation.

The young child or animal is always experimenting, and the results of his experiments are always enriching the meaning of sense situations, and giving them new values for emotional and conational life. It is difficult even for the adult to realize how much more sense experiences mean than their own natures justify. We say of a green apple that it *looks* sour, of ice that it *looks* cold. The sight of the former may produce a grimace, and the sight of the latter a shiver, just as though the taste and the touch were being experienced now in the present. We do not *recall* the taste or the touch from past experience. We shall find, if we examine our experiences closely, that sight and touch are so bound together that if one is given the other seems to be also present. If we shut our eyes and draw a pig, the pig, as drawn, seems before us all the time ; hence our surprise when we open our eyes and discover a pig whose snout and front legs are far from meeting on the paper. Again, an object, we say, *looks* rough : the appearance means " roughness " so vividly that it requires a moment's reflection to realize that the roughness is not given in sense.

We have already referred to **Attention** in dealing with impulsive responses (Chapter V). Selection is of fundamental importance in mental development. As conation attention finds satisfaction in clearer and fuller knowing. This involves the consciousness of likeness and difference and the process of comparison spoken of below. Often selection is progressive and thereby attention involves retention. The selection is progressive. If we consider any impulsive response which is more than a single moment, we can trace the progressive development of selective cognition and impulsive action as an inter-related series ; e.g. a hunting dog who picks up a scent shows the reciprocal relation between cognition and response. The scent may lead him this way or that ; here he overshoots his clue, and noses round to recapture the scent ; then runs off in a fresh direction as he follows the trail, stops dead as he is aware of an intensification, next carefully investigates a narrow area. In such an instance we see the progressive selection of attention carried out from moment to moment. This gives us an illustration of the second office

of attention. It not only secures clearness and fulness of meaning in cognition, but it links together into one organic whole the separate meanings which have entered into such progressive selection. They have an inner coherence, as contributing to the working out of the impulsive chain. Regarded as separate moments of awareness they would lack such coherence. Mere temporal sequence would fail to endow them with a common link of significance. For our dog there have been a series of scents, sights, contacts, sounds, which considered apart from the hunting, would have no inner connexion, but which, given the working out of the hunting impulse, are episodes in a whole. They form a *Conative Unity*.[1] In respect of value and of meaning these experiences owe their coherence to the continuity of the impulse, which is acting itself out. Such progressive selection is all-important for learning from experience. On the recurrence of the sense situation the meanings and values of the old unit will come into play and endow the given with a fuller significance. The dog's hunting will advance in skill. Attention and Retention thus inevitably co-operate as elaborative processes. As mental life develops progressive selection is no longer bound to follow the temporal order of events. From this there results a continuity or coherence between experiences which have no temporal continuity with one another. Take such a simple performance as that of a child building a tower with bricks. This will not be made up of impulsive acts pure and simple. We may admit that it is governed by intention. It is guided, let us suppose, by the intention of making a tower like the Town Hall clock tower, but none the less the conation is carried on from step to step by the developing present situation. There is progressive attention. This big brick goes here, this little one fits in there, that one must be kept for the top, etc. The whole sequence would work itself out to the completion of the tower. But suppose a welcome visitor arrives in the nursery, then tower building is abandoned for a time while

[1] We owe this conception to Professor Stout, who stressed the place of organic wholes in knowledge and in behaviour ("Manual of Psychology" first edition, 1898). "Configurations of Experience" is to-day the leading theory of the "Gestalt" school of psychology in Germany. These patterns of experience are treated as organic wholes, but the explanation offered for them differs in many respects from that given for a conative unity.

other interesting events take place. At the end of an hour the visitor departs and the tower is once more the business of the day. The building goes on from the point where it was dropped. There will be a real continuity between the previous operations and those of the present. The same intention is governing the whole ; as each stage is developed attention is carried on from point to point until the building is completed. We may compare the continuity of interest here with that which is evident in higher forms of mental development, e.g. the sustained interest in a book translated day by day. Here the thread of ideas is continuously progressive, although there is no temporal continuity in the translation. It is probable that continuity of attention where the temporal sequence has been interrupted always implies ideas, and is not realized in the earliest stages of development. None the less the principle of continuity is the same in the simple as in the later stages of life, viz. progressive conation, progressive interest.

We have said that attention is selective, that what is attended to is *focal*, while all else is *marginal*. Now, the question is often asked whether we can attend to more than one thing at a time. The answer is " No." By saying we can only attend to one thing we mean we can only have one selection. We can attend to several things if they all belong to one interest and make for us a whole, but we cannot follow out more than one interest at a time. We can take in several letters at a glance if they make up one word or a short phrase, yet if letters are presented as separate meaningless letters we can hardly grasp more than four. Entertainers on the Variety Stage often profess to carry on several performances simultaneously. They can do so because they have rendered their performances so habitual that they can be executed with a minimum of attention. Attention may rapidly oscillate, say, from plate-throwing to disk-spinning, from this to foot performance on a rotating globe, and then back to the plates again ; the various occupations will thus run perfectly simultaneously. Attention is successive in its rapid shifts of focus, but the outward show gives no clue to this.

In childhood this singleness of selection is very evident. A child is absorbed in a given situation until his attention is attracted by a new interest. The whole body will reveal the single line of interest. We say of a child that he is all eyes, all ears.

We have spoken of attention as conation, as active endeavour; but we must refer to cases where attention to a sense-given situation would seem to imply neither awareness of meaning nor affective consciousness of value. Sensations which are intense, e.g. bright lights, loud sounds, may be said to arrest attention, yet we cannot base such awareness on instinctive or on acquired value. There would seem to be in such cases no true selection. Attention to forceful situations is passing; there can be no progressive development of the situation apart from interest. The intense or forceful situation "diverts" attention, as Dr. Ward has pointed out. Already in the early days of life we can distinguish "*enforced*" attention due to the intensity or sudden shock of a sensation from the "*spontaneous*" or interested attention, where there is consciousness of meaning and value. It is the latter alone which fulfils the function of building organic wholes of meanings and value. When such wholes have been formed, situations dull or indifferent in themselves borrow an interest through their association with some recognized value. Attention to such situations is called "*derived*" attention; e.g. a child attends to his sums or French exercises for the sake of a high mark when he may have no interest in the sums or the French. He derives his attention from his interest in gaining marks or in avoiding punishment. "Derived" attention may in its turn give rise to "spontaneous" attention. The interest which at first is borrowed from another source may in time be found in the object itself. I may start to read a book which I regard as dull, because it will give me some information which is important for my work, in which I am interested. The book has only a borrowed value, but as I read I may become attracted by the book itself. The more, I know of its contents the less dull I find it. It now awakens "spontaneous" attention. Derived attention often has the character of an intentional action. When the intention

to attend is clearly present attention is termed *voluntary*. E.g. "I am going on with this puzzle until I have solved it."

CONSCIOUSNESS OF LIKENESS AND CONSCIOUSNESS OF DIFFERENCE

The importance of the affective experiences which characterize success and failure would be lost unless the experient were able to recognize sense situations as the same or as different. Intelligent learning from past experience, therefore, involves not only retention and attention but also the consciousness of likeness and difference. The animal and the child could profit little by experience without this feature of cognition. We have said that we know of no beginning in mental life. We must assume that primitive sensation would not only be experienced, but be experienced as like or unlike the experiences which at that moment were constituting the sensory background of life. Mental life implies change, and for change to be experienced there must be both alteration and persistence. Of the very simplest sense change, then, we should postulate that it had its own character, that it was differentiated from the background of sensory experience, and that it was assimilated to like sense changes previously experienced. So much is required for even the rudimentary significance of sensation. Every sensory event owes its meaning or value to what it is in itself, its own character (quality, intensity), and also to its differentiation from, and assimilation to, the meanings and values of other experience. Even in the case of primitive meanings and values it seems impossible to dispense with the influence of retention and the differentiation and assimilation which this involves. We said that one of the offices of attention was to connect together the objects of cognition which entered into one progressive development of conation, whatever the basis of interest might be. We said, further, that such a connexion became an intrinsic coherence. We may note a similar line of progress here. The simple consciousness of likeness and of difference is the foundation for the process of comparison whereby other

intrinsic connexions are formed. Comparison brings about a knowledge of likeness and difference and of other relations, e.g. temporal and spatial relations. It results in a synthetic grip of two objects of knowledge as related. Such duality is essential to comparison ; but it is not present in the simple consciousness of likeness and difference. The sense event which is picked out from, or assimilated to, other experience has a single significance. The experient does not hold before himself two objects as alike or as different ; he is aware of one meaning, he perceives a differentiated and assimilated " this."

We are postponing the account of comparison until Chapter XII, but the reader must not thereby be misled into thinking of comparison as something which does not arise until the adult level of development is reached.

ILLUSTRATIONS FROM CHILD AND ANIMAL BEHAVIOUR

" When I put two little kittens (three days old) which I am rearing, on my hand in a standing position they will remain some seconds without stirring, as if enjoying the heat of my hand, but soon, the contact of my skin not affording them the same sensation as that of the body of their mother, they began to shake their heads, show signs of uneasiness, move about on their little tottering paws, and try to suck that portion of my hand which has possibly reminded them of their mother's breast. But as the sucking produces no result, after a few fruitless efforts they become more and more uneasy ; they do not feel at home, they have begun to realize the difference between my hand and their mother's soft body, and they begin to pine for their familiar shelter, and to cry out for it loudly. . . . A baby fifteen days old, who had just gone to sleep, and in whose mouth I put a feeding bottle filled with plain water, sucked it for a few minutes and then began to make faces, to open its mouth and finally to cry " (Perez : " The First Three Years of Childhood," pp. 133. 134).

Both the kittens' and the baby's behaviour show retentiveness, assimilation, and differentiation. The kitten and the baby behave to the sense-given situation as to the same kind of situation in the past. But the contact does not satisfy

the kitten, and the sucking fails to content the baby. The present is thus differentiated both in value and meaning; it has a new significance.

"Long before the thirtieth week healthy children distinguish human faces from one another, first the faces of the mother and the nurse, then the face of the father, seen less often, and all three of these from every face. Probably faces are the first thing frequently perceived clearly by the eye. It has been found surprising that infants so much earlier recognize human faces and forms and follow them with the gaze than they do other objects. But human forms and faces being large moving objects awaken interest more than other objects do; and on account of the manner of their movements and because they are the source from which the voice issues are essentially different from other objects in the field of vision" (Preyer: "The Development of the Intellect," p. 6).

This passage illustrates the early selective operation of attention. "Faces" are interesting as moving, as large, as frequently accompanied by voice sound. Such selection involves discrimination, while the recognition of the face as mother or nurse or father demands both discrimination and assimilation with retentiveness. The present sense experience has its meaning determined by past experience. An interesting illustration of the inter-relation of these processes is afforded by the study of the development of a child's ability to localize objects seen and sounds heard.

"As soon as the child can hold things opportunity occurs to make observation of his sense of depth. Our own observations are opposed to the frequently expressed view that the child at first sees all visible objects far as well as near, lying by each other, and therefore tries to reach alike those in the distance and those close by. . . . So long as the child's idea is confined to 'near' space, it is indeed only close objects which arouse his attention and his impulses to movement. Distant objects are during this period not noticed at all as a rule, since the powers of convergence and accommodation do not yet exist for them. . . . After the first three months 'distant' space begins to open out before the child's eyes. . . . The child sees and notices when he goes

out or from the window, vehicles and people passing by, recognizes his mother coming in at the door as well as the bottle in her hand, looks round inquiringly for new impressions to satisfy his love of looking. . . . To begin with distant space offers far more hindrances to sight than does near space. Objects lying behind one another form a mutual screen ; something just before visible suddenly disappears behind another. After six months the child no longer accepts this disappearance with equanimity, but begins to look for the object ; and at nine months he has got on so far as to overcome, by very practical efforts of his own all hindrances to sight. At this time we find with special frequency that the child never grows tired of throwing things out of his perambulator, and as they disappear over the edge he raises himself up and bends over too, to find them again. . . . We consider even more remarkable the following observation which we made of our daughter . . . Hilde (9 months). When the child today was greeted by someone standing at the end of her perambulator but hidden by the thick intervening down-quilt, she took the annoying quilt in both hands and dragged it down a little, apparently to see who was calling. The experiment was again tried, and, after repeated calls, H. always responded to them in the same way, whether they sounded from the right or left " (Stern : " Psychology of Early Childhood," pp. 117, 118, 119, 121, 122).

Localization requires continual growth of meaning, made possible through retentiveness with attendant assimilation and discrimination. The incident of the quilt and also the one of looking over the edge of the perambulator show a unity of attention process and illustrate a conation which finds its satisfaction in discovering the lost voice or toy. We may take another illustration from Miss Shinn's observations on her niece, showing the first stages in the development of the significance of words, viz. the connexion of word sound and sensation into a unit of meaning.

" Late in the sixth month, 173rd day, she turned so often when she was called that I tried to find it it was only the calling tone she recognized, and called her in the same tone by several others. I found she would turn only for ' Ruth,' or nick-names containing a similar vowel sound, such as ' Toots.' These were, it is true, nicknames by which she was often called, but for others quite as frequent, e.g. ' Baby,' she would not turn. In five or

six careful trials, made behind her, I found that she would turn and look intelligently into my face whenever called with the long vowel (u or oo); and though trials in the next two days were imperfectly successful, they were entirely so on the 178th day, and thereafter.

"Just at the beginning of the eighth month she began to know the names of the family, and thereafter understanding of words steadily developed" (Shinn: "Notes on the Development of a Child," Vol. I, p. 112).

In conclusion, we may give an extract illustrative of continuity of conation expressed both in attention and in muscular activity. The end of the passage illustrates the diversion of attention to a new interest.

"On the 317th day she climbed of her own accord up two steps of stairs. Later in the day I set her at it again, and moved on up the stairs before her to induce her to follow, though I did not urge her at all. I wished to see how far she could go. She toiled on to the top of the flight, fifteen steps, with a rise of 6½ inches; once she fell back and was caught by her mother, who followed behind her for that purpose; and two or three times she slipped back and lost a step but kept at it diligently. She was greatly pleased to have accomplished it, though out of breath: she pulled to her feet by the post on the landing, hesitated, made some motions to creep down head first, then seeing the remaining steps across the landing (five in number) crept over to them and mounted them. All the way up she occasionally grunted with exertion as she drew herself up a step, and always uttered a satisfied exclamation on achieving it. She did not use her knee this time, but placed one foot on the step, reached forward and put her hands on the step next above, and so pulled the other foot up, thus climbing rather than creeping. She was very exultant on reaching the second floor, shouting and laughing. She got to her feet looking longingly at the garret stairs, and ran her eyes up them to the landing; but before she reached the foot was diverted from them by the sight of a room door open, inviting exploration" (*ibid.*, Vol. I, p. 353).

The extract affords an excellent instance of an "organic" whole, for thus we may style the interdependent experiences. The climbing impulse carries the little subject forward from point to point, now hindered, now furthered. "This"

touch and " this " sight prompting to " this " movement, and " this " movement in its turn yielding " that " pressure or " that " contact or " that " new vision. The series is a unity, the working out of one continuous conation.

EXERCISES

1. If you have any opportunity of observing young children (say, babies up to two years old), or young animals, kittens, puppies, study the incidents in their environment which arrest their attention; notice their ability to recognize and to locate sense objects. Record their impulsive or instinctive activities.

2. Give an account of the fundamental intellectual processes, using the following records for illustration:

(*a*) " In spite of the joy that the child has in gay pictures, recognition in the early years is not aided by colours, and in no wise disturbed by wrong colours or entire lack of them. It looks as if the importance of colour for the act of picture-recognition lay quite below the surface of consciousness. Thus the black and white pictures in catalogues and newspapers, photographs, etc., are just as well identified as those in the picture-book's gay pages. Hilde (1 year 3 months) recognized her parents in a cabinet photograph and named a cock's black silhouette at once *Cocky*. (1 year 6 months) Figures of animals which were cut out, a red dog, a green cock, and a blue cat—and stuck on white cardboard she named without any hesitation, nor did she in the least give us the impression of having noticed, for a moment, the impossible colours.

" Neither does the absolute size of the pictures—often in no sort of relation to the things themselves—seem to offer any real difficulty in recognition. . . . Hilde (1 year 9 months) had wooden blocks painted with scenes from everyday life. She at once knew from the relative sizes whether the human figures were meant to represent adults, children or dolls " (Stern: *ibid.*, pp. 188, 189).

(*b*) " In the seventieth week her great joy was a shallow box some $2\frac{1}{2}$ inches high, on which she would stand, stepping on and off with endless pleasure. Once she fell, and sat down hard on the edge, but usually had no trouble in stepping on and off. In the seventy-second week she saw two shallow boxes, one set on the

other, and tried to climb up on them; to prevent this unsafe performance, her grandmother placed them both on the floor, some three inches apart. The child then began to get up on one and step over to the other, with much pride. She kept this up for some time; and later amusing herself awhile in another room, she suddenly abandoned her employments and hastened back into the room where the cherry boxes had been, looked around till she spied them set up sideways against the wall, and immediately began to pull them out, saying, "Box!" Getting one, she started to carry it to where they had stood before. Her mother put the two boxes in a convenient place, and there the child stepped upon one, over to the other, and back and forth and down for some time very happily; then picked up one and carried it—an armful—out into the other room, where she tried placing it in different spots and standing on it, then in another room, and at last took it back to the side of the other box, and tried to set it down there, getting it partly on top of the other; but finally set it in its former place" (Shinn: *ibid.*, Vol. I, pp. 371, 372).

CHAPTER VIII

LEARNING

WE have seen in the last chapter the fundamental processes essential for all learning by experience. We want now to look at "learning" a little more closely.

We have noted that situations acquire meaning and value for the individual through experience. In responding to primitive meaning and value the individual receives consequential sense experience, which, entering into the same unit of behaviour as the primitive response to the original situation, gives acquired meaning and value to this unit.

We have seen instances of this in Chapter V. We might as a further illustration consider the experience of a puppy bubbling over with life and activity. Anything capable of being "worried" has a predetermined value for him. He is alone in a hall with a fluffy sheepskin door-mat unnoticed until this psychological moment. His attention will select this object because of its predetermined value, its smell, its fluffiness. He flings himself upon it open mouthed. Who can tell the pleasure or thrill of his experience? The mat is shaken, sworn at, torn. There may be joy in the rending, in the sight of the flying fragments. It is dropped, it is seized again, and so on until the biting, rending, impulse has worked itself out. But hereafter the sight of such a door-mat has an acquired as well as a predetermined value. It means a thing that tastes so, that tears, that offers resistance, that is shakeable. With the meaning is involved new value: it offers such-and-such emotional thrills. It is a richer, fuller object for the puppy than it was before.

Now suppose the puppy is punished for damage to the door-mat. Suppose that vengeance has descended upon him just as his instinctive series of actions had worked out to its close; then a further value and meaning will be acquired. The mat is a delightful, tearable, shakeable thing, but it is also a

"touch-me-not" master's thing. It is a source of delight and a source of pain. It will excite an instinctive impulse and at the same time it will excite an inhibition. On any particular occasion the stronger tendency will prevail. On some fine morning, say, when his energy needs some outlet, the sight of the door-mat, with its call to action, may prove irresistible. It is once more seized and worried.

Later in life other experiences may give a new meaning and value to the door-mat. The impulse to tear and worry objects has died down. The mat is now a soft, warm resting-place, conducive to sleep. It is to the dog a different thing from what it was to the puppy. It has different essential qualities. James tells us that psychologically "essence" is teleological. "The essence of a thing is that one of its properties which is so important for my interests that in comparison with it I may neglect the rest" ("Textbook," p. 357).

We have said in Chapter V that we did not consider it practicable or helpful to try to catalogue all the activities of the human being under the heading of predetermined values. As alive, the human being is always striving, always in relation with his environment. The predetermined values of the species show the marked lines of his response to environment without, however, exhausting all the possibilities of human endeavour. Man is an explorer and experimenter, and in the course of his exploration he discovers new meanings and new values. Exploration, suggestion, and in particular imitation, are for ever enlarging his world of meaning and value.

In the foregoing we have emphasized the importance of the unity of the episode into which the various experiences enter and from which they acquire their meaning and value. This is what is termed "conative unity" (See pp. 96, 97). We are now in a position to take up the various ways in which behaviour changes as the experient learns from his experience.

LEARNING BY EXPERIENCE

(1) We have as the simplest case **adaptation.** A response either original or acquired may be modified in some manner

with practice. The individual becomes more expert in his action. This advance in mode of response is seen in animals in their instinctive behaviour. As Professor Lloyd Morgan has pointed out, the young swallow improves in flight with practice. The co-ordination of movements is more perfect.

Adaptation of response will include elimination of unnecessary features. Clumsy responses involve movements which disappear from the perfected behaviour. It will also include change or alteration in some feature of a total response.

(2) Learning may take the form of **inhibition.** Whether original or acquired, the consequences of a response may be painful and thus lead to inhibition of the response in question. In the case of the puppy we saw that such inhibition of an impulsive response might ensue through punishment. Pleasure and pain are great educators, and the latter would seem even more influential than the former.

(3) A rather different type of learning is shown when a response made to one situation is transferred to another which is connected with the first. This occurs in what is termed **"the conditioned reflex."** The example that is most frequently quoted is from animal behaviour, viz. Pavlov's experiments with a dog. At the sight of food a dog's mouth will water. Let us call this a reflex. Now every time the dog was shown his food Pavlov caused a horn to be blown. In time the sound of this horn became the condition for the reflex " watering of the mouth." The sound of the horn becomes a substitute for the original stimulus. It may be claimed that such substitution is the result of repetition. Horn and food have been presented together frequently; they are connected in time and one can replace the other. If this claim is correct, then we ought to regard the " conditioned reflex " as a purely physiological phenomenon. That one stimulus can function for another must depend upon some change in the function of the nervous system, and this change is regarded as dependent upon the frequency with which the two stimuli have occurred together. On this line of explanation there is nothing which merits the term " learning." The substitution is treated as taking place independently of the pleasure and pain experienced by the subject in connexion with the original

situation. So far as the writer is aware this point had never been established, though proof is crucial for a " Behaviouristic " explanation of the acquirement of new responses.[1] In accordance with the principles of Chapter V, we shall regard all " conditioned reflexes " as cases of " acquired meaning," and as implying a value situation for the experient. (See p. 94.) It is not the blank repetition of the walk situation and its preparations apart from meaning and value that enables a dog to learn to respond to the preparations as originally he responded to the open road. " Boots " mean " walk " (cf. the horn in the Pavlov experiment). We may go further and claim that in many substitutions we see indications of intelligence. A dog will exhibit considerable discrimination between preparations which do, and preparations which do not, mean a walk. For a dog who watches his master such points as the taking up of a certain bag, the use of a certain tone in addressing him, will counteract the effect of other circumstances and yield the meaning, " no walk." There is here the putting two and two together which we have regarded as the sign of intelligence.

(4) **Acquiring a New Response.** We learn by success and failure. It is failure which stimulates us to new efforts. (*a*) The most primitive method of learning by doing is "*The Method of Trial and Error.*" As the name indicates, this way of learning consists in trying, failing, and trying again and again. It is the method which can be observed in the behaviour of animals more frequently than in that of human beings, but it is by no means restricted to animals or even to children.

When an animal is confronted with some situation for which there is no suitable original response and for which as yet no response has been learned, he may follow the method of trial and error. The situation must have a value for him. It must awaken impulsive conation. Workers studying animal behaviour generally make use of a food situation. The food is either smelt or seen, but cannot be obtained by a simple familiar response. Whereupon there follows trial after trial until success satisfies the impulsive conation, or until repeated

[1] See Appendix for a fuller account of the " conditioned reflex."

failure either through fatigue exhausts the animal or through pain brings about the inhibition of the conative effort. Such learning can be studied by the use of puzzle boxes or of mazes. The food may be visible inside a puzzle box, but only obtainable when some simple fastening is undone or some obstacle removed; e.g. Professor Small studying the behaviour of rats placed food in a wire box mounted on legs which were buried in a mound of sawdust. In the base of the box was a hole giving access to the food. The performance to be learnt was that of burrowing under the sawdust to the hole. This the rat learns after repeated trials. At first he tries to get at the visible food by a more direct method, running round and round the box sniffing at the wires. In some experiments, e.g. Professor Thorndike's with cats, it is the animal which is in the box while the food is placed outside. The animal has to learn to open some simple catch to escape from confinement. In maze experiments the animal has to learn to follow a certain path to obtain the food which is placed in the centre of the maze, or to learn to run through the maze to reach the shelter of his nest box and a welcome meal. Here, as in the previous case, he learns by trial and error. The maze offers blind alleys and paths which lead away from the food or nest box. Learning by trial and error may be a long process. When a performance has been successfully accomplished on one occasion it does not follow that it will be successfully performed on the next occasion without preliminary trials and failures. If a curve is plotted for successive occasions it will be found that in spite of "ups" and "downs" the failures grow less, and finally the performance is "learned." The animals then make the "right" response to the situation at once. Now this gradual fixation of the right response implies "selection." Not only does the right response become fixed, but the mistakes disappear. We have to remind ourselves what we mean by speaking of "right" response, or of "error." Why is one response right and another a failure? The success or failure of the action cannot be fixed by the spectator with reference to some goal which he considers suitable. The success and failure must be something appreciated by the learner. We have to fall back on our view of

"value." If one response is repeated on future occasions while other responses are eliminated, that response must have enabled the experient to satisfy conation. Selection of "this" and rejection of "that" have not been, and to the writer it seems that they *can not* be, explained without reference to the experience of the learner, and, in particular, to the experiences which we term affective and conative.

(*b*) "*Intelligent Learning.*" In the lowest forms of "trial and error" the learning seems to be blind. There is the urge of an appetite or instinct which keeps up the efforts at response, and there is appreciation of failure and appreciation of success; but there seems to be no insight into the practical requirements of the situation. Success may come by chance, and it may be missed by chance. At the opposite end of the scale is the intelligent learning which involves a clear conception of the problem and of the conditions of success and failure. Such learning involves thinking and is discussed in Chapter XII. But between blind "trial and error" and the intelligent learning of a clear-headed thinker there lie many degrees of intelligence. There are forms of learning by trying which an unprejudiced observer finds it difficult to call blind. Both children and animals display practical intelligence. We give instances in Chapter XII; but as we are here dealing with learning as a whole, it is important to draw attention to this learning by trying. Here failure becomes significant and gives rise to an attentive survey of the given (analysis). The final success indicates a synthetic grasp of the nature of the situation and of possible modes of response. Many striking instances of such learning are given by Professor Köhler in his recent book "The Mentality of Apes." We will quote the following account of the behaviour of "Sultan," a chimpanzee. At the time of this observation Sultan was already expert in using sticks to rake objects into his cage. The objective in this case was a tempting bit of fruit:

"Sultan is squatting at the bars, but cannot reach the fruit, which lies outside, by means of his only available short stick. A longer stick is deposited outside the bars, about two metres on

one side of the objective, and parallel with the grating. It can not be grasped with the hand, but it can be pulled within reach by means of the small stick. Sultan tries to reach the fruit with the smaller of the two sticks. Not succeeding, he tears at a piece of wire that projects from the netting of his cage, but that, too. in vain. Then he gazes about him (there are always in the course of these tests some long pauses, during which the animals scrutinize the whole visible area). He suddenly picks up the little stick, once more goes up to the bars directly opposite to the long stick, scratches it towards him with the ' auxiliary,' seizes it, and goes with it to the point opposite the objective, which he secures. From the moment that his eyes fall upon the long stick, his procedure forms one consecutive whole, without hiatus, and, although the angling of the bigger stick by means of the smaller is an action that could be complete and distinct in itself, yet observation shows that it follows, quite suddenly, on an interval of hesitation and doubt—staring about—which undoubtedly has a relation to the *final* objective, and is immediately merged in the final action of the attainment of this end goal " (Köhler : " The Mentality of Apes," pp. 181, 182).

The behaviour begins with trial of the most obvious response —use of the short stick which lies to his hand. But Sultan does not blindly persist in this. The use of the longer stick and the obtaining of this implement by means of the stick in hand seems to show a grasp of the problem situation in its relation to ways and means ; it seems to show intelligence.

HABIT

Habit exemplifies the power of repetition. Every repetition of an impulsive action renders that particular kind of action easier, for owing to retentiveness present performance is facilitated by past performance. We see this in every case where skill is acquired through practice. In such a complicated action as typewriting every typewritten document renders the learner more expert, until finally he automatically strikes the right keys. Habit may be regarded as " permanent facilitation " gained through repetition.

(*a*) Such repetition may be due to an individual's environment, physical and social.

In early childhood parents and nurses form habits in the

child by the regular repetition of a given situation and the required response. We may take the soldier's drill as an example of repetition arranged by social environment. The sailor's rolling gait illustrates a habit due to the situation provided by his physical environment.

(*b*) Repetition may be due to unintentional imitation. A child acquires a certain manner of pronunciation through imitating what he hears on all sides; e.g. a certain vowel sound characteristic of the part of the country he lives in. Catch-phrases, gestures, and mannerisms are acquired by imitation, and may become so habitual that an individual will indulge in them without realizing that he is doing so.

(*c*) Repetition may be due to intentional practice.

In the acquirement of skill the individual intentionally repeats a movement again and again until it becomes automatic, e.g. a stroke at golf, the fingering of a musical passage, the vocalization of a phrase.

Ability to acquire habits is essential for progress. In so far as any response becomes habitual and automatic the individual is free to attend to other claims of life. It is important that many of the situations presented by the sense world should be met by habitual responses in order that the individual may attend to the world of ideas. Great educators have seen different sides of this great force in life. John Locke ("Thoughts concerning Education," 1693) saw in habit the ally of progress. He regarded the training of children in good habits as the aim of education. He wished to see a boy acquire the habits of a gentleman, an aim which goes far beyond the acquirement of superficial good manners. As a physician he laid great stress on health, and was very emphatic on the need of early training in habits of bodily hygiene. With good habits instilled by education, the youth was equipped for meeting the tasks of life. The inwardness of Locke's teaching can best be realized by considering the handicap in later life entailed by the lack of those practices which Locke would have wished to see habitual. It is sufficient to consider the importance of correct speech, to realize the effort demanded in later life to make good any defect in the intonation acquired in early childhood. To

speak his mother tongue correctly should be the birthright of every child, whereas it is the privilege of a relatively small part of the nation. While Locke saw habit as the ally of progress and the economist of labour, Jean-Jacques Rousseau saw the opposite side of the picture. Habit renders action mechanical, it turns men into machines, it stereotypes action. It is thus the ally of convention and the enemy of progress. He declares in his educational biography ("Emile," 1762) that the only habit his hero shall have is the habit of having no habits: "La seule habitude qu'on doit laisser prendre à l'enfant est de n'en contracter aucune."

Each writer sees a truth. Habit is an ally of progress in that it economizes effort and sets attention free to conquer new worlds of achievement. But in so far as it stereotypes behaviour in relation to any particular situation it renders an individual incapable of finding fresh meaning or fresh value therein.

Some psychologists use the term "habit" whenever there is learning in respect of behaviour. Every advance is styled "the acquirement of a habit." This use of the term seems unfortunate, as the term is needed to describe those performances which through repetition have become automatic.

METHODS OF LEARNING BY HEART AND OF ACQUIRING SKILL

When something is committed to memory or "learnt by heart" the learner builds a train of ideas. For the most part he forms a train wherein the members are connected by direct unity of interest. The ideas link themselves one to the other, carrying through some theme. We shall consider this more fully in the next chapter. If the matter learnt be poetry the framework of metre and rhyme will furnish indirect links. The framework of one part corresponds with the framework of another, and this similitude helps the learner in his task. Further, it furnishes indirect clues and suggestions. He is helped to the right idea and the right word by the framework which must be filled. Learning by heart, however, is not only the building of a train of ideas. It is one thing to give an orderly account of the gist of a passage and another

to give the words in which the ideas are expressed. The task of committing the words to memory is, to a large extent, the task of forming a motor habit. Among recent writers no one has emphasized this point more clearly than M. Bergson. It is the same truth which Montaigne expressed "Savoir par cœur, ce n'est pas savoir." Verbalization is movement, and thus to learn by heart is to acquire the habit of running off a string of words. Words may usurp the place of ideas. An illustration of this is the oft-quoted reply of the schoolboy. The master asked, "Do you think of the meaning of your Latin verses when you say them?" The boy replied, "Only if I cannot remember the words."

Rules for learning by heart are partly, then, the rules for forming a habit. Experimental investigation has shown that there are advantages in learning by what is termed the "global" method. By this method the material, whatever it may be, is treated as a whole and repeated straight through from beginning to end instead of being treated piecemeal and repeated in sections. There are obvious limitations to this; only a moderate amount of material can be treated as a whole—say a stanza or a paragraph. Longer portions of material require subdivision. The "global" method ensures the direct association of the ideas. The sense of the whole is unbroken, the natural sequence of ideas is preserved. But in so far as verbalization is a habit, it may be necessary to depart from the "global" method, and to repeat again and again some single word or phrase which is difficult of acquirement and which refuses to come "trippingly" from the tongue without continuous practice.

A further rule of learning by heart which has been established by experiment is the desirability of distributing the repetitions over a period rather than "heaping up" many repetitions on any one occasion. Two repetitions a day for six days leads to more successful accomplishment than six repetitions on two days.

These rules, however, require modification under certain conditions. They may be taken by us here as empirical generalizations useful for guidance in practical application. Learning, whether it be motor performance or the acquisition

of ideas, does not follow a line of steady progress. In acquiring motor proficiency, e.g. in learning typewriting, we find what are called "plateaus." The learner makes straightforward progress, generally rapid at first; then reaches a dead level, wherefrom, for a time, there seems to be little or no advance. Then again comes progress and then a further "plateau," and so on, until "skill" or "facility" is attained. Similarly, in the acquisition of ideas. The learner, say, of a language, makes rapid progress with vocabulary and grammar and then appears to stick. Many conditions may contribute to this. Up to a certain point many new associations can be formed rapidly. They may not be difficult in themselves, and they may be acquired by the help of existing knowledge and accomplishment. But further advance may depend upon the perfecting of these new associations. Until facility in the performance of certain movements is achieved, progress in skill may be impossible. So with ideas. The newly acquired ideas may need to be fitted into many settings before they can be the basis for further progress. Conditions of interest are also important. At first the newness of a task stimulates attention. The learner is as yet undaunted by failures or difficulties. As the task loses its novelty, and as pitfalls become known, there may be a falling off in the enthusiasm and zest of the learner. Most of us can verify this from our own experience with some game or accomplishment.

THE CHARACTERISTICS OF A GOOD MEMORY

1. We may, perhaps, include in the first place a feature which refers to learning rather than to memory, viz. *ability to acquire information or habits rapidly*—ability so to get hold of facts that the ideas relating to them will be capable of being suggested hereafter. It may be ability to learn by heart, or ability to grasp the meaning of passages, ability to "take in" names, faces, places, so that they can be reproduced in idea upon demand.

2. We put second *faithfulness*. The ideas which are suggested should correspond with the facts observed or learned. A name should be remembered as it was pronounced or written.

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A scrappy or distorted memory of facts is not a good memory.

3. Thirdly, we may ask of memory, *durability*. The ability to reproduce a required item of knowledge or personal experience should not be transitory, lasting a few hours or days, but more permanent. Temporary memory has its uses. Cramming, as the ability to rapidly acquire a great many facts for temporary memory, is not to be despised when rightly used. It is an evil when abused, when it is substituted for a deeper and fuller grasp of knowledge.

4. *Ease* of recall is a further feature of good memory. It is valuable to be able to reproduce ideas at suggestion without labour or delay.

5. This is closely connected with what, perhaps, is the most important feature of all—*relevancy* or *serviceableness*. It is important to be able to furnish the appropriate idea on suggestion. This really involves more than memory itself, for it requires a consciousness of fitness or of the purpose in view at the moment and a control over trains of associations. Children's examination howlers furnish us with instances of irrelevance. Often such answers start on a correct association, but are diverted to cross tracts which are wrong or at best irrelevant for the purpose in hand.

EXERCISES

1. Is it helpful in practice for a person to understand the reasons why the formation of a given habit is desirable? Apply your remarks to two of the following:

(*a*) Toothbrush drill at school.
(*b*) Punctual attendance at school or place of business.
(*c*) Observance of silence in certain parts of a factory.
(*d*) Clearance of litter after work or play.

2. If you were teaching a group of young people some new accomplishment, e.g. basket-making or metal work, and some of the group had reached a point where they appeared to make no progress and where they were discouraged, what would you do to help them to persevere with their task and to advance from the "plateau"?

3. "Sometimes it comes right and sometimes it doesn't.'

The pattern will only come right if I cast on an odd number of stitches. I don't know why, but the book says so."

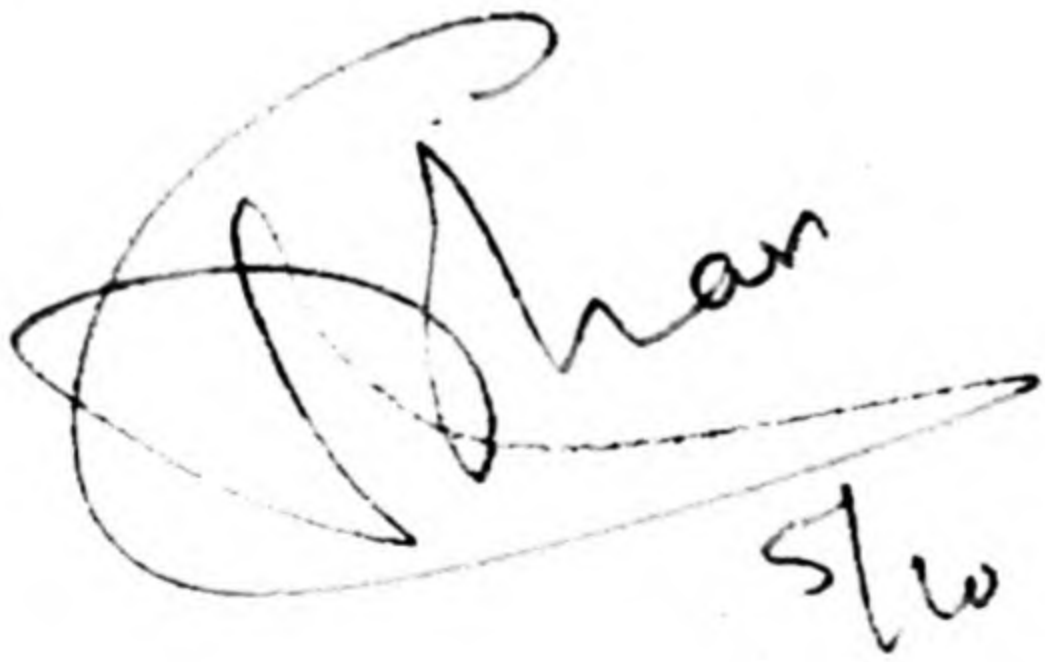
"The milk won't turn to junket if you let it get too warm." "Why?" "Oh, I don't know, but it won't. I spoilt ever so many junkets before I found that out."

Judging by their comments, how far have these learners profited by their experience?

4. If you have the opportunity, study the way in which a kitten or a puppy learns some new feat, such as opening a door which is unlatched but pushed to.

5. Refer to the second extract quoted p. 103, and treat it as an illustration of learning by trial and error. Is the learning "blind"? If you can supply an original observation, discuss the question with reference to this in preference to the passage cited.

6. What advice should you give to a person who wished to break a bad habit, e.g. swearing? If you were a nurse in charge of a patient who was addicted to drink or drugs, how could you help him to overcome the habit?



CHAPTER IX

IDEATION

IN much that has been said we have presupposed the presence of ideas, and it is necessary to recognize the advance which development from the perceptual to the ideational level of consciousness involves. We have pointed out that owing to the retention of past experience, the sense data in a child's world become more and more significant. We may refer to what we said in Chapter VII, pp. 91–95. We gave examples there of " acquired meaning." The sound of water meant a bath. Similar in character is " complication." One sense experience is often supplemented by the imagery of another sense experience which enters into the same whole as the first. Sight is supplemented by the imagery of Touch. Actual Touch by the imagery of Sight. Smell by Sight or Touch or Taste. We gave examples to illustrate this complication of sensations by imagery. In both acquired meaning and complication interest is on the present sense situation. The features supplied from past experience fill out the significance of the present, but have no independent meaning.

IDEAS, TIED AND FREE

When we have ideas our interest is not in a sense situation as it is in perception. We have to trace how this new kind of object—idea object—may have arisen.

The concentration of attention on what is given in the form of imagery rather than on what is given by sense probably first occurs in connexion with the future. If some familiar chain of impulsive action were arrested before it had worked itself out to its goal, the next step, which is not yet realized in sense experience, would be anticipated in *idea*. The impulse would carry the individual on from the present, and past

experience would supply the missing termination. On the arrest of a musical phrase the listener completes the phrase in idea. He hears the notes in imagination. It is probable that it is in this manner that ideas, i.e. awareness of something not given in terms of sense, first arises. Such ideas arising in connexion with some given impulsive action are called **Tied Ideas.** The present suggests *what will be* on the pattern of *what has been.* Such ideas must occur quite early in mental development, and there is evidence that they are active in animals. They are but a step in advance of acquired meaning. The dog who begins to dance at the sight of his master or mistress dressed for a walk, or at the rattle of his dinner bowl, anticipates in idea the coming walk or the coming meal. A child will anticipate the next move in a game. He will have a *preperception* of catching the ball. Such ideas are not *self-supporting,* they are " tied " to sense situations. They occur only as steps in a chain of sense experiences connected with impulsive activity. At a later stage attention can be concentrated on an image given object which is interesting in itself. These further ideas, in contrast to the foregoing, are termed **Free Ideas.** The conditions favourable to such a concentration are those of a dull sense world. A given sense object suggests a past experience, and this, being of more interest than the present, holds attention. Attention, then, may pass from that particular experience to some other which carries on the interest of the first. Thus the individual becomes absorbed in a train of ideas. These will probably be reminiscences of recent experience. To-day the garden is dull, there is no one to play with. The empty summer-house, with the litter of yesterday's robbers' den, awakens the ideas of yesterday. The child lives yesterday over again instead of living in the present to-day. He is in the world of ideas. The presence of free ideas renders possible intentional action. The individual can be moved by a value that is given not in a present situation, but in an idea. He can anticipate and he can act in order to bring about an imagined situation. This is of great importance in learning. Suppose a boy learns to swim, he will not be moved thereto by any of the situations which occur when he

is floundering in the chilly water, as a dog would be, in virtue of his instinct. The values that move the boy to persist, even against the deterrent values of the sense situation, are present only in idea. He sees himself as a great swimmer, or as like Bob Jones. He has a definite intention and aims at realizing this result. He acts with full foreknowledge of what he is going to do. This extension of the world of value has far-reaching consequences, as we shall see in Chapter XI.

It is perhaps impossible to say whether the free ideas of reminiscence and of anticipation are more primitive than those of fancy—the free ideas of castle building. As in the case of reminiscence and anticipation, the materials for castle building must come from past experience. It is "what might be" instead of "what has been" or "what will be" that comes to mind in fancy. When the impulse of the moment cannot find in the present situation any satisfaction, or when action does not lead to the development of the value which has been suggested, past experience can supply the knowledge of how the satisfaction is to be reached. What sense does not give, imagery can yield. The situation works itself out in idea as "what might be." To take a very homely illustration; it is tea-time, there is appetite, but not the hunger that is satisfied with bread and butter. Nursery tea is dull; there comes, not the memory of any particular past party tea, but an idea of the tea the child would like now—a vision, perhaps, of apricot jam, of cream, or perhaps the smell and taste of muffins. The little castle fulfils the impulse which the actual course of experience does not fulfil. All the values which we have spoken of in relation to impulsive action will furnish occasions for such flights into the world of ideas, when they are not fulfilled in the world of sense reality.

NATURE AND FUNCTION OF IMAGERY

Tied ideas and the free ideas of anticipation and of reminiscence are sustained by images. Images are described as copies of sensations, as if they were ghosts of previous sensations or echoes of past sense experience. Such description is helpful in so far as it brings out the sensory character of imagery. We

can see, hear, touch, in imagination. But this must not mislead us into thinking that those sensations which we had on looking at a rose-tree have somehow or other changed into the imagery which we have in remembering it. The image is not the sensation withered by the passage of time. It is to be thought of as being every whit as much a new event, happening now in mental life, as was the sensation originally. The great difference between it and sensation is that whereas the sensation was "given" to the individual and was in its character quite independent of his wishes, and independent of what he was knowing at the moment when it occurred, the image is not given but "suggested," [1] and always depends on knowledge which the individual already has. We have seen that the earliest images come in relation to some train of impulsive action which is not yet complete. The actions which have already taken place suggest the tied idea sustained by a sensory image of the next step in the train. The approach to the room of a friend, the knocking at the door suggest his "Come in," before we hear his actual voice. The image could not be suggested unless the individual had past experience of the voice; but when it does come it must be regarded as a fresh event in mental life, not as the echo or repetition of the old sense experience.

Other differences between sensation and imagery are the following:

1. An image is less vivid than a sensation. It has less compelling force on attention than sensation, comes with less shock into the flow of life. 2. Closely connected with this is the fact that an image is not accompanied by organic or motor sensations, as are many sensations. In short, in comparison with sensation it is an attenuated experience. It is only in moments of exceptional excitement that imagery is enriched by

[1] This use of the word "suggested" and "suggestion" is not the same as that defined on p. 57. "Suggestion" is used here to express the relation between ideas wherein the *suggested* idea continues or completes some part of the meaning of the *suggestive* idea. This use of the term with reference to ideas is more fundamental than the use with reference to values. It may be the basis for that use. It is possible that the exhibition of a value situation by Y. can only affect or move X. if it gives X. an idea (more generally, a meaning), which in its turn evokes another meaning which affects or moves X. In this sense all suggestion is by way of meanings or ideas, and all suggestion is auto-suggestion.

actual organic accompaniments, and in those cases it rivals sensations in vividness. 3. Further, an image lacks steadiness. The image colour or sound, though meaning this or that thing quite definitely, does not remain before attention for scrutiny as does the given colour or sound of sense. The image comes and goes, and is now this, now that fragment of the thing. 4. Again, an image does not vary in relation to movement, as does a sensation. If you have a mental vision of a rose it will not disappear because you have turned your head. We have to adjust our body to what is " given " us, but when an idea is suggested the image requires little or no accommodation.

Sensory images are substitutes for sensations, and just as the latter are the occasions for perception, so the former are the occasion for ideas. Later, in adult life, these sensory images are frequently replaced by words—verbal imagery. When I remember my garden, instead of the mental vision of the crimson rambler in all its glory, the words " that glorious crimson rambler " do duty and sustain the memory idea. We may illustrate this for ourselves by repeating the famous experiment of Sir Francis Galton ; we may ask several people to describe their memory of the morning's breakfast-table. Some people will report that they see it in all the detail of sense reality ; others that they only see fragments. Others, again, will have no imagery, no scent of the coffee, no touch of the toast or of the damask ; they will know what was on the table, they can describe the setting of all the objects perfectly, but they see nothing. It is recalled entirely by words, not by sensory imagery.

HALLUCINATION AND ILLUSION

Images and sensations may upon occasion be confounded. A vivid image accompanied by organic sensations may call forth behaviour appropriate only to a sense-given situation. In such a case there is **Hallucination.** The subject of the experience responds to a *false* sense impression. The commonest type of hallucination is one of sound. Voices present only in imagination are treated as actual voices speaking

aloud to the subject. These fake sense experiences should be distinguished from wrong interpretation of actual sense experience, which is the phenomenon known as **Illusion.** It is an illusion to mistake a shadow for a cat, because one is apprehensive of finding a cat in a given place, or to read one word as if it were another, because one is influenced by the general tenor of a passage or is preoccupied with certain ideas. It is an illusion to see a line shorter than another which is equal to it, because the latter has short lines for its neighbours, whereas the former line lay between lines longer than itself. But it is an hallucination to see a cat where there is no sense experience resembling one, but only a very vivid visual image of the animal. In delirium such confusion of imagery and sensation is frequent, and the patient behaves as if in the presence of a sense object. Some children up to the age of thirteen or fourteen appear to have imagery of hallucinatory vividness and to be able to project such imagery. They can, for instance, see with the physical eye, and not merely with inward mental vision, objects which they have regarded attentively on a previous occasion. They can describe these objects as if present, and as if they were then and there recording what they saw. A good deal of attention has been paid to this kind of imagery by Professor Jaensch of Marburg.[1] In order to indicate its perceptual character, i.e. the character of being projected or seen in space, such imagery is termed "*eidetic.*" After adolescence this kind of imagery is rarely present. Its presence in childhood is not without bearing on the vividness of the stories related by children, and also on the nature of the so-called lies which children tell so unhesitatingly.

BIOLOGICAL VIEW OF MEMORY-IMAGES

For the biologist the possibility of memory rests on the persistence of the effect of stimulation. Ewald Hering was the first to give prominence to this view, but the most recent representative of the theory has been Professor Richard Semon. Whenever any living creature is stimulated the state of the organism is different from what it was before.

[1] "Eidetic Imagery." G. W. Allport. "B. J. of Psy." XV, p. 99.

If we have regard to the nervous system we may say that the nervous system never settles down to being what it was before stimulation. This persisting change is termed by Semon an "engram." Should a similar stimulation recur the engram of the old response will be called forth and make the response different from what it would have been without the engram. It is engrams which, for the biologist, explain the possibility of images. When any event occurs which makes active the old response of the nervous system, when, in Semon's phraseology, it ecphorizes an engram, there will occur imagery. When the old situation and the present situation are very similar the old response blends with the new, and the experience in consciousness is "familiarity"; an event is recognized. For the old to exist side by side with the present response it must be sufficiently different from it. This occurs in association.

Images and sensations are of the same order. They are experiences which accompany (or, if we are interactionists, we may say are caused by) events in the nervous system. Sensations accompany original stimulations; images accompany the evoking of the old responses by association. Now notice that on the biological view an image is not a permanent entity. It only exists at the time when the nervous system is so stimulated that a former response is re-evoked. The image is a passing event. What endures or persists is the change which stimulation introduces in the structure of the nervous system. What that change may be Semon did not profess to explain. It may be some chemical change, possibly a change in electric potential, in the atomic structure of nervous tissue. Whatever it may be, it, and it alone, persists.

When we talk, then, of the stores of images we are really, in accordance with this view, merely referring to the potentialities for imagery which the structure of nervous tissue possesses. There is no image so long as the potentiality remains potentiality only. The image exists when the activity of response is aroused and only then. When it is over the image is non-existent.

As psychologists, however, we have to think of mental life, and we must try to think of retentiveness and memory in

terms of the work or function of mental events. We have seen that past experience is retained in the sense that past work is continued and carried further by present mental life. What we term our memory knowledge is the fruit of past events of knowing. These events are over and done with, but the mental work done by them, which was their function, persists. It is this growing organization which constitutes " the structure of mind." This structure is being built up by the events of mental life ; in its turn it determines the function of mental events, their meaning and their value. We may from this point of view regard it as a great potentiality to which each event gives a partial realization. We shall have to refer again in Chapter XI to this notion of " the structure of mind."

LAWS OF ASSOCIATION OR SUGGESTION

We have seen that " tied " ideas at first arise in connexion with some train of activity, that they complete a series or fill out missing members in some whole which is being presented in sense experience. Even free ideas in the earlier stages of development only occur in close connexion with sense perception and serve as additional items of knowledge in relation to sense objects and as guides to action in the world of sense things.

It is a higher stage of development when free ideas have interest in and for themselves, as a result of which the individual is carried on from idea to idea, that is to say, when ideas form trains. For ideas to form a train there must run through them, just as there runs through a train of impulsive behaviour, a common thread of interest. This interest gives unity to the ideas. If we represent a train of ideas by the letters " a," " b," " c," " d," then " a " must lead to " b," and " b " to " c," and " c " to " d." The meaning of " a " suggests " b," and so on. Ideas thus linked together are said to be associated. Let us take an instance. The sight of a pillar box " reminds me " of a letter left lying on my desk ; this leads me to the idea of the person to whom the letter is addressed, then the idea of the news the letter contains, then the idea of the recipient's surprise; on this may

follow the idea of the possible reply. So the train runs on, and all the while I have walked along the street responding almost automatically to the situations it has supplied, passing this person, avoiding that one, etc. My train of ideas has no connexion with my perceptual experience save in the initial moment when it was started by the sight of the pillar post.

The links of association between ideas have interested psychologists from the time of Aristotle. He recognized four types of linkage. He noticed that (1) ideas of events which happened simultaneously or in immediate succession were associated, also that (2) ideas of objects which resembled one another, (3) ideas of objects which contrasted with one another, and (4) ideas of objects contiguous in place, were associated. Later writers changed this classification of types into a series of explanatory laws. Because objects are together in place and events happen simultaneously or successively in time, the ideas of those objects or events are associated—Law of Contiguity in Time and Place. Because objects resemble one another, the ideas of those objects are associated—Law of Similarity. Because objects contrast, the ideas of those objects will be associated—Law of Contrast. These three laws of association are regarded as unsatisfactory in present-day psychology. Treated as Aristotle treated them, they represent varieties of association. But taken as laws they do not present us with the fundamental conditions of association; they are far from furnishing an explanation of the facts. Why does the sight of the pillar post suggest my neglected letter? It is, of course, true that pillar posts and letters are associated in place, but this particular letter is not associated with this particular pillar. Nor can we find similarity or contrast between them. Again, why does the idea of the neglected letter lead on to the idea of the recipient? Is this association in place or time?

It is sounder to look for a common thread of interest, and to regard a common interest rooted in the meaning of the ideas as the condition of their association. The ultimate law of association, as Dr. Ward has pointed out in his "Psychological Principles," is *continuity*, not *contiguity*. Continuity

of interest may lead to **direct linkage**, as in the train instanced, or to **indirect linkage** where there is a transition from one interest to another by means of a common member; e.g. suppose that when my train of ideas had reached the thought of the reply, I had been led to the memory of an occasion when I had anticipated a reply expressing such-and-such views and had been startled by receiving a letter expressing very different ones. Suppose this memory had called up the memory of my dilemma as to how to set right the storm in the teacup that I had unexpectedly set brewing, and so on. Then I should have run quite away from my unposted letter and from my friend to a very different set of circumstances with another interest. Each train has its own theme; the transition from one to the other was made by the idea of an anticipated reply. This was a bridge or switch which gave access to the second theme of interest. Between theme (1) and theme (2) there is only *indirect* continuity. These two forms of continuity will cover a wider field than that covered by the Laws of Association. Cases of Contiguity and of Contrast usually hinge on direct continuity, while cases of Similarity correspond to indirect association, for similarity usually depends on the presence of a link with a common meaning. Conversation round a dinner-table may serve to illustrate this. One guest tells an anecdote which starts the ball rolling; another guest exclaims, "That reminds me," and thereupon follows another story. The link between the two may be an incident of the same type, e.g. missing a train or mistaking one person for another. One person may remind us of another and start a chain of ideas relating to that other. In such a case we can usually detect, when we try to analyse the occasion, the features in the one person which by their character have served as the common link in both interests. It may be the eyes, the poise of the head, the voice. Whatever it is, it has served as a bridge.

MEMORY OR RECOLLECTION OF THE PAST

Memory, in the strict sense of the term, ought to be distinguished from the suggestion of an idea by some present

object or in response to a question, or again by association with some other idea. Memory should always involve a reference back to the past experience of the subject. To take an example. If one is asked " Where is Helsingfors ? " the question requires or calls for certain items of knowledge ; it suggests ideas. Let us suppose the subject to frame the reply, " Oh, on the Gulf of Finland." Such an answer involves knowledge which has been acquired at some period, and which may therefore, in a sense, be termed " memory." If knowledge were lost as soon as acquired this answer would not be forthcoming. Retentiveness is essential. But in making such a response the individual has no consciousness of the past. It is present knowledge of a fact with no time reference. It is of the same order as our knowledge of the multiplication table, dates, foreign words, etc., just an item of knowledge relevant to the question asked.

But if someone asked, " Where did you first meet Jones ? " The ideas suggested and incorporated in the answer, " At Edinburgh, when I was a student," are of a different complexion. Here there is a conscious going back into the past. The whole significance of the answer lies in its reference back to the past experience of the speaker. If there is no other immediate claim upon his interest such an answer is likely to arouse other ideas connected with the period in question. He begins to remember incidents of the student days, episodes in which Jones figured, and so on. The individual has gone back into his past life. This is the type of experience which it is desirable we should denote by " memory." Since, however, the term is used so commonly for *any item of knowledge* called up in idea, it may be better to use the word " recollection " with this special reference to the past personal experience of the subject.

FORGETTING

We can hardly leave the topic of association and memory without saying something of forgetting. Which is the real problem—remembering or forgetting ? Should we marvel why we do not remember everything or should we marvel that we remember anything ?

Generalizing, we say that for anything to be remembered it must have "made an impression on us." This usually means that we have attended to the incident or object. It has interested us, or we have intentionally paid attention to it. But depth of impression can also be effected by repetition. In education it was at one time more customary to rely on repetition than on interest. But for something to be remembered there must be something in the present to suggest the idea. Something given in sense experience or some idea must be associated with the remembered item. Association is therefore an important condition for memory. Depth of impression is perhaps more characteristic of youth than of age, but the adult can command a greater wealth of association than the child. *Efforts at training or improving our memory are at bottom either lessons in concentrating attention—gaining depth of impression—or lessons in forming and organizing associations.*

Forgetting will consequently be due either to failure of attention, insufficient interest in an incident or object, or to failure in association.

We cannot expect children to remember what does not interest them. They are not able by an effort intentionally to concentrate attention on any given topic, and hence may fail to remember the indifferent or uninteresting episodes of life. The adult who is not interested may fail to concentrate attention, not through inability to do so, but through lack of any desire to do so.

It is often said that we forget what is unpleasant. This is a half-truth. Two types of cases need to be distinguished. An unpleasant incident may be forgotten because it is not suggested; it is out of contact with present interests, "dissociated." Or an unpleasant incident may be forgotten because when it occurred attention burked it and focused on something else; e.g. little attention is paid to a letter fixing an unwelcome interview. Such casual notice involves a paucity of associations. The letter stating the engagement is put on one side; it is not brought into relation with the week's doings and will not be suggested by them. Both types of forgetting are spoken of as "repression."

The unattractive or distasteful incident is said to be repressed into the unconscious. The question of the unconscious will concern us later. It is sufficient here to notice that this sort of repression is very different in character from intentional avoidance and voluntary neglect. There are many occasions whereon an individual intentionally refuses to dwell on a certain subject, and rejects any idea referring to it, should such be suggested. It would be well if the term " repression " could be restricted to instances of this kind. In these cases the topic must be at least glimpsed in memory before it can be driven out of mind, whereas in the cases first considered it is not remembered at all.

Failure of association is the other explanation of forgetfulness. We have already said that if there is little attention there will be a paucity of associations, and hence a failure in suggestion. Where there is no well-organized thread of connexion associating items by direct association, failure in memory is common. We often plead in excuse for a forgotten item, " I did not see that it was part of so and so," or " I did not connect it with——" In learning a passage of prose it is easy to omit details which are irrelevant to the gist of the whole, easier than in poetry where the metre acts as a suggestive framework requiring its full complement of words. To explain forgetting we must look at the finer or secondary conditions of association and consider dissociation.

SECONDARY CONDITIONS OF ASSOCIATION

We have seen that the same link may be suggestive in relation to more than one thread of associations. We then have **Divergent Associations.** A reference to Geneva in the newspaper might, in virtue of its connexion with my web of ideas, suggest, let us say, a past summer holiday, or the " League of Nations," or Stanley Weyman's novel " The Long Night." Which of the possible lines of ideas will be the one actually suggested? Several conditions come into play here. We may place first the condition we discussed in connexion with a good memory —*relevancy*. If we are following out some present thread of

interest the reference will arouse the ideas most appropriate for that reference. Byways and side-tracks will not be pursued, and consequently irrelevant suggestions will not occur.

Other important conditions are *recency* and *frequency*. A recent association thread is more likely to be followed than a more remote one. If I have recently been thinking or talking about the League of Nations, Geneva will suggest this topic to my mind. Again, other things being equal, a frequent association will prevail over one which is followed but seldom. If I often follow out literary associations and seldom dwell on politics, Geneva will suggest Stanley Weyman and not the League of Nations.

The *emotional mood* of the moment is also influential. Trains of ideas which, by virtue of their emotional colouring, fit our mood are more likely to recur than those which do not. If we are depressed and miserable, incidents suggest depressing associations rather than cheerful ones. We may call these conditions of the actual course taken by association or suggestion "secondary," since they presuppose the primary condition of continuity of interest. Divergent association will explain some cases of forgetting. Strength of a current interest will render a given situation suggestive of one set of associations only, and thus shut out possible ideas. A person may forget a name or a promise or a commission; yet the forgotten item could have been suggested by the situation of the moment, had this not been taken exclusively in the meaning which fitted with the dominant interest. We often say, "I cannot remember the name; I can only think of so and so." The wanted name is out of touch with the interest of the thinker and the ideas associated therewith. Or, again, absent-mindedly we leave our umbrella behind in the train. When we depart from the carriage the situation fails to suggest "collection of possessions"; we are thinking of something else.

Here we have ideas "crowded out," not in virtue of any character which they themselves possess, but by reason of the interest of a governing train.

DISSOCIATION

If links of association fail, certain items in the structure of knowledge will cease to be suggested and thus recalled to mind. Whether items can, through such failure of suggestion and recall, die out and disappear completely is an open question. We each know from personal experience that under suitable conditions items of knowledge will be recalled which we may have believed to be forgotten; e.g. an old school or college friend may remind us of episodes, or bits of doggerel, of which we say, "I have quite forgotten that." Yet with the stimulus of talk and the suggestion of the old atmosphere and environment, back comes item after item. We cap his reminiscences, complete his narratives, recall a mass of "forgotten memories." Anyone who takes up a language which they have neither studied nor read for many years may at first be dismayed at the amount forgotten, and in the end may be surprised at the ease with which this "forgotten" knowledge can be remembered. In pathological cases "dissociation" is a common phenomenon. There may be "loss of memory" for sections of past life; persons, places, and incidents connected therewith seem completely beyond recall. Or, again, some special incident or episode is "forgotten," though this forgotten incident is the ground of the "meaning" and "value" which the patient attaches to certain situations. This is illustrated in cases of "phobia." High places, open spaces, or cats, or any other object may occasion unreasonable fear in a person—a fear for which he can give no explanation. The ground lies in a dissociated incident, and the doctor tries to reach the "dissociated" items of knowledge, the forgotten episodes, by the use of hypnotic suggestion or by the Method of Free Association. In either case the aim is the same: to discover a suggestive link which will lead by association to the recall of the items in question.

EXERCISES

1. Point out the suggestive situation and the association links involved in the following instances :

(*a*) Gunther (aged one year eleven months). "He heard Hilde mention 'board,' and at once he pointed to our easel-board and said 'wow-wow.' There was no dog to be seen on it, but two and a half months before their mother had drawn on that board large heads of a dog, horse and cat to Gunther's especial delight. To be quite sure that it was really a question of remembrance, his mother asked : 'And what else did you see on the board ?' To which Gunther replied 'Gee-Gee.' In the interval no picture at all had been drawn on the board to show the children, and also an absence from home had intervened." (Stern : "Psychology of Early Childhood," p. 239.)

(*b*) Eva (aged three years one month). "In her picture book as she came to a beautiful forest scene, she grew greatly excited and began after this fashion : 'Now once we were there ; we sat on the seat and the sun glistened through the trees. Then we ran round the hill and through the seats.' Her recollection was of the forest church in the seaside resort of Binz, which consisted of numbers of seats arranged under the trees. We had seen a wonderful sunset there, as the sun's fiery beams poured a flood of golden light through the green branches. (There was no setting sun on the suggestive picture.)" (*ibid.*, pp. 240, 241.)

(*c*) Gunther (aged two years four months). "To-day Gunther came back from a walk with a tale—unprompted but incorrect. 'Met Nanny and Polly.' These were two little friends that they had often met, but not for the two preceding weeks. The apparent spontaneity of this statement, I think, was really the result of my usual question to the little company on their return : 'Have you met anyone ?' Gunther in response to the suggestion in the question had several times given a wrong answer, and now he anticipates my enquiry by his information" (*ibid.*, p. 250).

(*d*) Eva (aged four years ten months). "I went with the children to a dairy with the expressed intention of buying milk-cheese which they all liked. But there was none to be had, and instead I bought some pickled cucumbers. Half an hour later Eva told her father : 'To-day with Mother we bought some milk-cheese.' Gunther contradicted this, and Eva corrected

herself with: 'Oh, no, pickled cucumbers.' To her father's astonished question as to whether these were much the same thing she explained: 'No, but we wanted to buy some milk-cheese'" (*ibid.*, p. 252).

(*e*) "What do you know of the Reformation?" Answer: "Henry VIII wanted to marry Martha Luther. The Pope would not let him, so Henry dissolved the churches."

"Who was the first king of Israel?" Answer: "Saul, afterwards called Paul."

2. A person has to remember the exports of a given country which he has never visited. A list of thirty items has to be committed to memory. One friend advises him to write them out in alphabetical order and learn them by constant repetition with such aids as, 4 begin with C and 2 with O, etc. Another friend suggests making some mnemonic out of the initial letters of the items. A third tells him to think of the items in relation to his geographical and historical knowledge of the country and its people. Which advice do you consider sound? Can you suggest anything better?

3. A very busy person undertakes to attend a meeting. He fails to appear, but writes subsequently to say that he forgot the appointment and only remembered the engagement later when reviewing his day's work. If we assume (*a*) that the engagement was in itself quite interesting and free from any "pain" value, (*b*) that it was duly noted when made, how may we account for the fact that it was forgotten?

CHAPTER X

SOME OF THE EMOTIONAL ATTITUDES AROUSED BY VALUE SITUATIONS, CONSIDERED IN RELATION TO SOCIAL BEHAVIOUR

WE said in Chapter V that in many impulsive actions emotional experience is the predominant feature, and that some emotional experience is the common accompaniment of instinctive response. Emotional experience is thus important, and we will consider certain characteristic emotional attitudes which play a prominent part in the development of the human being as a member of a society, viz. Fear, Anger, Sociality, Masterfulness, and Subjection.

What is commonly called " an emotion " is a very complex moment in mental life. It includes recognition, feeling, and conation. There is awareness of a situation, of what we term the source or object of the emotion, be this certain features in the environment, a definite thing, or an idea ; there is feeling, the whole event is pleasant or unpleasant ; and there is the striving to act. A marked feature in the whole episode is the complex of organic sensations which is present ; so marked is this that some psychologists have been tempted to regard this feature as the core of the whole, and to treat emotion as awareness accompanied by organic disturbances. What is often termed emotional expression is for these writers identical with emotion itself. Professor James was a leading exponent of this view. Suppose the sight of some shape in the dark awakens fear, Professor James would say that the awareness of the object aroused organic disturbances—a quickly beating pulse, cold shivers, sinking sensations in the stomach, difficult breathing--and that the experience of these organic sensations *is* the fear. Hence Professor James says paradoxically, we feel afraid because we tremble. We shall follow Professor Stout in holding that over and above these

features, important though they be, there is a further and essential feature, an affective experience : the attitude of the subject towards the situation. It is this subjective attitude which gives to each emotion its specific character, fear, anger, etc., and it is this subjective attitude which we shall regard as constant and characteristic of the emotion throughout life. This is an important point. We recognized primitive value situations and primitive instinctive responses (Chapter V), but we have also recognized that as the individual develops many and diverse situations acquire value, while at the same time the instinctive response to value becomes overlaid with "learned" behaviour. Despite changes in behaviour we regard the emotional attitude towards a value situation as constant.

FEAR

Professor McDougall regards fear as the emotion accompanying the tendency to flee and to seek concealment. The kind of situation that evokes this instinctive response is one which we may label "dangerous" or "threatening." The peculiar situations dangerous to any species of animal, e.g. its hereditary foes, will arouse fear and call forth the characteristic response. The response will vary with the species and with the kind of danger. Flight and concealment may serve as broad headings for these responses, but we must recognize that there are variations. Instead of flight we may have shrinking or recoil, the withdrawal of the whole or part of the organism. Instead of concealment in the sense of hiding or seeking shelter, we may have immobility, but since immobility may be a way of eluding notice, we are justified in regarding it as a variation of concealment. Characteristic of fear in many species is a response which we may regard as social, viz. the cry which brings help or assistance from the parent or from the mate. The human child exhibits each variety of fear response. The start or withdrawal, actual flight, so soon as locomotion is a possibility, concealment, immobility, and, lastly, the cry. The complex of organic sensations which accompany these responses will vary with the response. It is possible that certain factors in the complex

are common to all varieties of fear, viz. visceral sensations dependent on the secretions from the ductless glands and the sensations accompanying rapid heart-beat.

It is not easy to give a comprehensive description of the situations which possess primitive fear value and arouse instinctive responses in the human child. We may say they are dangerous or threatening, and we may look to the history of the human species to give us the clue to the nature of such situations ; but none the less it is not easy to determine where the human being prior to all the lessons of experience finds "danger." Some writers would have us believe that there is no primitive fear value, that we are born "fearless." This belief, however, hardly seems to accord with the facts of early infant life as studied by good observers. Conditions disturbing to the equilibrium of the body, such as falling or sinking, produce even in the first months of life the clinging response characteristic of fear. The start of recoil and the cry appear equally early.

Eva (one month). "A strange start of fright was noticed several times : once as the child lay on the couch, and it yielded as her father leant upon it ; then frequently in her bath Eva would in terror throw up both arms as though she was afraid of falling or sinking" (Stern : *ibid.*, p. 129).

Strange and large objects are recorded as producing fear in some young children ; so also loud sounds. We may perhaps consider that any sudden and strong stimulus has a danger value. The mysterious also would seem to be terrifying. But who shall say what is and what is not mysterious for the young child in his environment ? The following are interesting examples of this source of fear :

"In her fifteenth month, we one morning heard Margaret uttering inarticulate exclamations of distress, and saw that she was pointing to something and backing away from it ; on looking we discovered a thistle down on the floor. Sully gives a parallel instance : 'A little girl of three standing by the bedside of her mother (who was ill at the time), was so frightened at the sight of a feather, which she accidently pulled out of the eiderdown

quilt, floating in the air, that she would not approach the bed for days afterwards.'" (Drummond: "The Dawn of Mind," p. 44.)

These are cases of movement in objects without the usual accompaniments of life. Is this the source of mystery? A striking parallel is supplied by the biologist, Professor Brooks, who records the terror of his dog at the sight of a bone moved across the floor by a thread which the dog did not see. The terror was so great as to throw the dog into a kind of fit.

Whether darkness has a fear value seems a disputable point. Some writers who attribute a primitive fear value to darkness, to water, to furry, to wet, and to slimy objects, trace this primitive value to man's racial inheritance. Danger lurked in dark places and in water; furry-animals and slimy reptiles were the foes of his ancestors; hence the fear value of these situations for the human child. Many children, however, seem to be unaffected by such situations. Several observers who find no trace of fear of the dark in the first months of life, record it as appearing later. It would seem to be a situation which can rapidly acquire a fear value when the child has once experienced danger from any strange or unfamiliar object.

Pierre Loti has given us a description of an early experience of his own which brings out clearly the leading features of childish fear. As we read it we realize that it is the memory record of an artist, and is set down with the skill of a practised hand, but the fidelity of the narrative is patent in the facts recorded. Loti was not two years old at the time of the incident narrated. He had been playing happily in the *salle à manger* in the firelight and was excited at having discovered a new mode of locomotion, viz. that of running and jumping, which he had practised with delight.

"Now and then I found a strange delight in going into the darkest nooks where vague terrors came over me of nameless things; and then returning to safety within the circle of light, looking back with a shiver to see whether anything had come

behind me out of the black corners, to follow and catch me. Presently, the flames having quite died out, I was really frightened; Aunt Bertha, too, motionless in her chair, whose eyes I felt upon me, no longer gave me a sense of protection. The chairs even, the chairs set all round the room, began to disquiet me by their tall dark shadows which leapt up behind them at the pleasure of the dying flare, exaggerating the height of their tall backs against the wall. And above all there was a door, half open to a dark ante-room which led to the big dining-room, yet more empty and black. Oh! that door. I gazed at it now with a fixed stare, and nothing in the world would have made me dare to turn my back on it. This was the beginning of winter-evening terrors which, even in that well-beloved home, brought much gloom into my childhood. The thing I dreaded to see had as yet no definite form; it was not till later that my visions took a shape. But my fear was not therefore the less real, and transfixed me with wide open eyes in front of the fire which no longer gave any light,—when, on a sudden, from the other side, through another door, my mother came in. Oh, how I flung myself upon her! I hid my head, I wrapped myself in her skirts. This was the supreme protection, the refuge where nothing could harm me, the nest of all nests where everything was forgotten" ("Loti: A Child's Romance," translated by C. Bell, pp. 10, 11).

The situations which acquire a fear value and are avoided, become more and more numerous as life advances; any experience which has proved painful may acquire a fear value. We have the proverb, "The burnt child dreads the fire"; this expresses the source of much acquired fear. It needs some counteracting value to rob pain of its fear-evoking power. The doctor who has lanced a gathering will be a source of fear, unless he has some other value to the child, say, that of being the man who gives glorious pick-a-back rides downstairs. So it is throughout life—we are ever investing the painful with some other value in order to rob it of its terror. As thought and ideas reach maturity, fear attaches itself not only to a present situation, but to foreseen or possible consequences. The reflection, "If I do so-and-so, X will happen," will act as a deterrent when X has a fear value. Remote, as well as immediate, dangers threaten, and the birth of imagination sees the birth of many new terrors.

Since the individual is a member of a community, he will be assailed by "social" as well as "personal" dangers. He shuns what threatens his family or friends. Further, he learns to fear dangers which affect his mental and moral life. He fears to lose his reputation, to face ridicule, to meet opposition in argument. Thus for man there is place for the virtue of moral courage beside that of physical bravery, and room for the vice of moral cowardice beside that of physical faint-heartedness.

Fear has always been treated as the great deterrent or inhibiting factor in social life; but this is not the whole of the social significance of fear. We have spoken of the cry of fear. The cry and the impulse to flee to the mother or to some other member of the community for assistance is important. It furnishes a bond between the individual and his fellows. The cry for succour which is part of the primitive response of fear, and which finds its counterpart in the later stages of development, marks the interdependence of the individual and society. Th. Hobbes placed "fear of death" first in his list of passions which led men to seek peace. It was, therefore, in his view one of the ultimate sources of the social pact and a basis of government. He, however, saw in fear the negative rather than what we may term the positive side. He saw it as a deterrent force. A man abstains from hurting another in order that the other may abstain from hurting him. Hobbes underrates the positive need of mutual assistance, and fails to recognize the artificiality of an individual apart from a community. It is the dependence of the individual for succour upon his social environment and the response of that environment to his need which gives the basis for authority and government. Fear as a disciplinary force in conduct is fear of threatening consequences; but such fear will separate an individual from his fellows and leave him an "outlaw," unless it carries with it the desire for their goodwill. It is necessary that the authority which punishes should be recognized as the authority which protects. Fear of father, mother, or teacher will have little disciplinary value, unless it is to father, mother, or teacher that the child can turn for protection when in distress or danger. The impulse

of fear to seek assistance is reinforced by the impulses of sociality.

It is this positive side of fear which enables the primitive emotion to be altruistic. So far as the individual realizes his dependence upon another, it is possible for fear to arise in a situation which threatens this other. Such altruistic fear would seem to be prior to the fear which implies the existence of what we have learnt from Mr. Shand to call a "sentiment" (Shand: "The Foundations of Character"). The parent fears for the child by reason of his sentiment of love for him, but the child can fear for the parent through his dependence upon him. When in danger, a leader fears for any member of his band and they for him through their interdependence upon one another, quite apart from the presence of any sentiment. But as soon as any person or thing has been made a centre of interest in the life of an individual, i.e. as soon as what Mr. Shand calls a sentiment of love has arisen, fear will extend to all that threatens this centre of interest. It is thus that a man fears on behalf of a friend. Sentiments will be considered in Chapter XIII.

Before we leave this topic we must refer to the readiness with which the emotion of fear is induced by suggestion. No value perhaps is so easily bestowed upon a situation as that of fear. The behaviour of a frightened mother or nurse or companion will arouse fear in a child who otherwise would have experienced none. It is this fact which makes it difficult to determine whether certain fears are inherited or are the outcome of social environment. In the first years of life situations easily acquire emotional values of all kinds. Because of its consequences for the whole of later life the acquirement of fear value by a situation is of great moment. The ease with which fear is induced, even in adult life, is evident in a panic-stricken crowd. A single cry of fire, a shriek, the frightened rush of one person, is sufficient to incite fear in a whole audience.

ANGER

Anger is aroused by the thwarting of some impulse or some desire. It is often termed a parasitical emotion, since it requires the existence of some specific direction of conation before it can be experienced. Although the hindering or thwarting of some impulse is the usual occasion of anger, it is doubtful whether this is the only type of situation which arouses it. Pain, particularly if sudden and unexpected, will often excite anger. The playful fooling of two boys may change to an angry fight if one unexpectedly and inadvertently inflicts pain on the other. Similarly, the pain of a blow occasioned by running into an object will awaken a momentary outburst of anger. It is possible to say that in these cases also activity has been balked or hindered, that when the blow came the play was play no longer, or that movement was frustrated; but such a line of explanation does not seem convincing. The instinctive response of anger is pugnacity, and, as in the case of fear, the form of response varies with the species and with the occasion of anger.

Mr. Shand, to whom we owe the greatest study in the English language of the emotions, distinguishes the following:

(*a*) Destructive passion. In this there is violent movement, kicking, biting, screaming, rending of objects or dashing them to the ground.

(*b*) Overcoming opposition. Here the characteristic response is struggling and fighting. Mr. Shand notes that (*a*) and (*b*) may frequently be combined.

(*c*) Threatening behaviour, such as would ward off opposition: in animals, growling, preparing to spring; in human beings, frowns, threats, oaths, and the fighting attitude.

(*d*) Retributive anger, vengeance. The infliction of injury and pain is characteristic of this type of anger. It finds its outcome in blows and curses. If there is destruction, it is usually destruction of some object prized by the person against whom the anger is directed. The destruction is an injury to the person rather than an annihilation of the object for its own sake, as in (*a*).

All these types of response are to be met with in children.

Perhaps the only purely instinctive responses in human beings are (*a*) and (*b*). But it is difficult to be certain on such a point. (*c*) would seem to imply experience of offence and (*d*) to imply, further, some rudimentary idea of consequences. Miss Shinn records an instance of (*b*) in her little niece at eleven months of age. The child disliked being dressed and had shown distress at the restraint of clothes from the fourth month onward.

" One of the earliest signs of anger I ever detected in the baby, —a tone of temper in crying,—was on occasion of an extra dressing one day, at eleven months old ; and thereafter whenever she cried over being dressed there was the same slight tone of temper. There quickly appeared now a resentment against muscular restraint of any sort : to be held still in order to have her clothes arranged, to be kept fastened in her high chair or nursery chair when she wished to get away, caused angry crying and efforts to escape, almost the only signs of temper she ever showed at this period. In the thirteenth month, if she was taken or held against her wish, she would either stiffen and wriggle away, or lift her arms and become limp, so that she slipped through one's grasp. I note squealing, stiffening, and wriggling, in protest against being taken or held, as late as the nineteenth month, and it is my impression that it lasted considerably longer ; in the eighteenth month she would twist herself away from an annoying hold " (Shinn : *ibid.*, Vol. I, p. 185).

The pushing and flinging away of objects in temper illustrate response of the (*a*) type. It is seen in the infant of a few months of age. It would seem necessary to distinguish this response of anger from the hitting and rough movements which appear to have no anger with them, but to be an ebullition of activity through recently mastered modes of movement. Miss Shinn places the use of a stick earlier than the use of a missile in the exercise of this horse-play.

" There was something very hard to understand and classify in this rough play impulse. It had to my observation something peculiarly primitive and involuntary about it,—a quality that mothers recognize when they say, ' The child is *possessed* to do so and so.' There was an element of cruelty in it, which in the

early part of the fourth year differentiated itself in her treatment of cats; there was a horse-play much like that which continues so strongly in boys if their training is neglected, or that which is common in the lower animals; and there was a singularly primitive joy in the sensation of striking, especially when suggested by a stick in the hands" (Shinn: *ibid.*, Vol. I, p. 197).

As was the case with fear, the situation which arouses the emotion presents itself in different guises as mental development proceeds. Opposition need not be experienced as physical restraint; the balking of purpose in any form will arouse anger. Further, the balking need not be actually accomplished. It is sufficient if it is foreshadowed, if it is recognized as the consequence of given facts. In the adult the impeded progress of ideals and ambitions will arouse anger as effectively as the restraint of bodily movement.

In contrast with fear, anger may be considered a pleasant emotion. It is exhilarating while it lasts, whereas fear is depressing. The organic accompaniments of the two emotions are not wholly different; in both the action of the adrenal glands is important. But the inhibition of vigorous movement which is characteristic of fear is absent in anger. Anger is often called anti-social, but is so only in a narrow sense. Man opposes or fights another member of the community as the outcome of his anger, and thus is "anti" some member of the community. Looked at from another point of view anger is an emotion which in most of its manifestations presupposes a community and is exercised in relation to it. Men may fight and destroy natural objects, but in so doing they tend to personify these and to treat them as enemies. An explorer may wrestle with a jungle or a river and find in it the opposition of a stubborn fighter. Threats and retribution in like manner presuppose fellow-creatures to be impressed by the threat of vengeance. The "take that" spirit may be used with inanimate objects also, but for the moment they are treated as experiencing the wrath vented upon them.

We have said that anger is exhilarating while it lasts. The responses made under its influence are vigorous and effective. This is important socially. Under its power an individual is capable of great exertion, and will accomplish tasks which

would be too severe a tax upon him if undertaken in cold blood. One must beware of regarding these emotions—fear, anger, etc.—as either good or bad. They are neither, but simply, in themselves, non-moral. They only acquire a moral value in relation to the intentional actions which may ensue from them and in their influence upon the judgment of the subject of experience. Anger in particular is often spoken of as an evil. It may lead to evil, but it may lead to good. In the service of a moral end, when it perhaps would be styled righteous indignation, anger may even be regarded as a virtue. It may be responsible for sweeping moral reforms, which without the fire of the emotional backing would be slow of accomplishment. The inclusion of anger among the seven deadly sins was due to the recognition of its influence on a man's train of thought, and upon his voluntary actions. It blinds him. We may compare fear and anger in this respect. Fear may inhibit thoughts and ideas which would lead a man to prefer a higher to a lower course of action. He can think only of the ideas connected with the source of fear. He may thus become incapable of being moved by motives which would have appealed to him in a normal frame of mind. Anger likewise blinds a man, but in a different manner. The overwhelming value which it gives to the ideas connected with the situation arousing the emotion sweep the subject on to action. There is no delay for reflection. "Hasty" exactly expresses the behaviour of the man who is under the influence of anger. An angry man interprets everything in the terms which fit with those given by the situation exciting anger. An angry person "jumps" to conclusions. A conclusion is drawn which is at variance with other facts and ideas known to the individual, not because these ideas were positively inhibited, but because they never had an opportunity of coming to mind. Thought is too rapid; the meaning suggested is accepted without reflection. (Cf. the explosive type, Chapter XV.)

In addition to emotions proper we must recognize what have been termed "**emotional moods.**" Both fear and anger have related to them moods, viz. timidity and irritability respectively. An emotional mood usually lacks a definite

object as its occasion. The situation which arouses it would seem to be not an external situation, but a condition of the organism. Such a condition is often the aftermath of an emotion proper. When a violent emotion of fear has subsided there is left a disturbed organic condition, due, we may assume, to the excitement of the whole nervous system in the emotion proper. Similarly, an outburst of passion leaves behind a condition of excitement whereby bodily functions are disturbed. While in this state an individual may respond to situations which lack any of the definite features of danger or of opposition with the behaviour akin to fear or to anger. A child who has been thrown into a state of fear may, after the emotion is over, be " jumpy," starting at any unexpected noise, uttering little cries of alarm if spoken to by a new-comer. Thus too, the person who has been passionate will remain irritable, liable to speak angrily, to push aside a well-intentioned offer of assistance. Such an aftermath of emotion is quite natural in view of the widespread influence of emotion on the organism. (Cf. Chapter III.) The psychologist has also to recognize that moods which seem identical with the above appear, not as the epilogue of an emotion, but as the prologue. An emotional mood may appear as the accompaniment of a direct disturbance of the proper functioning of the organism. Thus irritability may be the correlate of a sluggish action of the liver. When such a mood is present, a small occasion will suffice to throw the individual into the emotion proper. In the irritable man a trifling delay in the appearance of an expected visitor will induce a violent storm of temper. Had he not been irritable temper would have never been displayed under these circumstances. In like manner timidity may be the correlate of an organic disorder. It may be the accompaniment of chill, poor circulation, and lack of food. When it is present, fear is an easy sequel. The greatness of " two-o'clock-in-the-morning courage " will illustrate this point. Emotional moods show the importance of organic conditions, and justify the stress laid upon organic sensations by such an authority as James. But none the less the experience of emotional moods, like the experience of emotions, seems to have its central factor in the attitude of the experient

to his world; meaning is coloured by a certain value. In emotion this value is derived from a definite object; in an emotional mood it is derived from the sense situation within the organism itself.

Fear and anger are emotions which upon occasion interact. When one is attacked, fear may give place to anger; flight, to fighting, or vice versa. The occasion is appropriate for either response from the subject, and his attitude may be this or that. The possibility of the other emotional value gives a heightened value to that which is realized. The frightened animal which attacks a pursuer, the frightened child who breaks out into passionate rage, both show an exaggerated degree of emotion. It is the same when fear takes the place of anger: fear will become terror, and flight, panic.

SOCIALITY, MASTERFULNESS AND SUBJECTION

We must now turn to the other groups of emotional attitudes which we propose to consider. These have a much more obvious bearing on social conduct. We would follow Mr. Bartlett in recognizing a group of three relationships as very important in social organization: primitive comradeship, assertiveness, and submissiveness. "These . . . are not merely formal names for the relationships which may hold between members of a social group, but they indicate tendencies which actually operate, just as all other instinctive tendencies do, in determining the behaviour of one member of a group to others, or of a member of one group to members of a different group." "They always involve, and perhaps may even be considered to grow out of, emotional, or affective relationships" ("Psychology and Primitive Culture," pp. 37 and 41).

What Mr. Bartlett calls primitive comradeship is the outcome of the emotional experience we would term **Sociality**, the attitude which arises from being in responsive relationship with fellow-creatures. The young child is dependent upon others for the supply of his needs, and it is difficult in the first months of life to distinguish between this physical dependence and the primitive need for fellowship. But the child soon

shows uneasiness in the absence of his habitual attendants—nurse, mother, etc.—and in particular gives manifestations of delight on reunion after separation. A give-and-take attitude is the characteristic of sociality. In the first years of life it is an attitude towards individuals rather than towards a group or class. It is a basis for the "*tender*" emotions wherein there is responsiveness and a tendency to unite the self with the individual awakening the emotion. This is evinced very clearly in the fondling and caressing movements of mother and child. But the tendency is to be recognized throughout the group of "*tender*" emotions. It is present in pity, in gratitude, in benevolence.

Sociality is also the root of sympathy. Sympathy is often said to be based on imitation, but mere imitation is insufficient to account for sympathy proper. The imitation must be more than copying, it must be a responsiveness to the individual who is the object of sympathy. There is implied a readiness to give and take: to give him assistance, to take up his signal, to see the problem of his situation. Into sympathy will enter the feature of tenderness. The following extract is of interest in this connexion: "Sympathy, it is said, is a kind of imitation, and this is strikingly illustrated in its early forms. . . . One curious manifestation of this early imitative sympathy is the impulse to do what the mother does and to be what she is. Much early imitative play shows this tendency. It is more than a cold distant copying of another's doings: *it is entered on as a way of getting nearer to the object of attachment*" (Sully: "Studies of Childhood," p. 244. Italics added).

The emotional attitude of sociality is essential for the group, and is seen in this setting as soon as the first years of childhood are passed. In adolescence group-feeling is very strong. We shall have to notice the importance of this in the next chapter. As adults we seek the society of others for various reasons. Some special purpose, or special knowledge may serve to band individuals together in a group. But once the group is formed the give-and-take relations of members, as distinguished from the dominance of leaders, presupposes the emotional attitude of sociality.

We might note, in conclusion, that this emotional attitude

is favourable for learning. It is frequently said that the child with brothers and sisters learns more quickly than an only child. When family relations are good he picks up instruction from his brothers and sisters in the easy attitude of comradeship. The value of this attitude is being recognized in modern schools. In connexion with this, however, the distinction between instruction and discipline is not unimportant; the attitude which favours the one may hinder the other.

Different from this give-and-take attitude is the emotional attitude of **Masterfulness.** Professor McDougall deals with this attitude under the name Positive Self-feeling. It is an attitude experienced whenever an individual exercises power. It thus arises whenever the individual accomplishes an end or carries out some achievement against difficulties. The opposition may be physical or it may be due to difficulties imposed by another person. It is an attitude which would seem to imply an audience, real or imaginary, for its manifestations. These may be summed up in one word, "display." There is usually a certain exaggeration of movement, a loudness of voice beyond the needs of the situation. The posture and bearing of the individual are impressive, his gestures are imperative, expressive of a cock-of-the-walk attitude. We see this behaviour in the young child who has accomplished some feat which has hitherto been beyond him, or has succeeded after difficulty in some great enterprise. The attitude is highly pleasant and stimulates one to further activity. We recognize this when we say, "Nothing succeeds like success." We seem to have a witness to the stimulating character of achievement in some of the instances of what is called automatism in children. A child repeats the same action again and again. To say that he does this like a machine is in many instances inept, since there is manifest enjoyment in the performance. The repetition seems to express a triumphal ease of achievement, and the facility increases with the repetition. This observation of her niece by Miss Shinn illustrates the point :

"In the sixty-first week she found that she could walk about with her head thrown back, looking at the ceiling, and practised

it for a long time. In the sixty-fifth week she walked about in her father's slippers, lifting her encumbered feet skilfully. At sixteen months old she hit upon the feat of walking backward, and practised it all day, much interested and amused. The next day some one showed her how to put her hands behind her ; this interested her much, and she would do it whenever asked. Seeing her pleasure in any new use of her body, I showed her how to fold her arms ; but the little arms were too fat, and she could only cross them, which she did all day with much satisfaction " (*ibid.*, Vol. I, p. 371).

The emotion of masterfulness is very important in quickening the consciousness of self. It gives occasion for the consciousness of self as an agent and a patient in the world of things and persons. And in this connexion we can consider the relation of masterfulness to other emotions. We saw that anger was called forth by opposition. Opposition to one who has been enjoying masterfulness will arouse fierce rage. This is seen even in the young child. To be cut short in the exercise of power is bitter. To lose an opportunity for enjoying the exercise of power and to see another enjoying the opportunity is an occasion for envy. " *I* want to do it now." " It is not fair ; it is *my* turn." " Let *me* have it." These are nursery cries which testify to envy. As soon as the child develops consciousness of himself as an actor and others as an audience for his display, he is capable of vanity and of the desire to cut a fine figure. He will pose as master in order to enjoy the emotion of masterfulness and witness the appreciation of others. Consider " Mr. Turveydrop " posing as a model of deportment. The Ladies Patterne gives us a graphic picture of " The Egoist " when a child :

" When he was a child he one day mounted a chair, and there he stood in danger, would not let us touch him, because he was taller than we, and we were to gaze. Do you remember him, Eleanor ? I am the sun of the house ! It was inimitable ! " (Meredith : " The Egoist," p. 460).

This extract illustrates a further characteristic of conduct which is closely connected with masterfulness, viz. courage.

Achievement of an end requires the conquest of obstacles, and among them the inhibiting obstacle of fear. The young Sir Willoughby conquers his fear of falling. The joy of domination inhibits the impulse to grasp a proferred hand.

Masterfulness may lead on to obstinacy. In spite of lack of success or of difficulties a man may prosecute an end through his desire to be master. In life we may find it difficult to draw the line between steadfast perseverance and obstinacy. The distinction would seem to lie in motive. Does the man strive to win through for the sake of the task or aim set before him, or does he try to win through for the sake of being master? It is the latter which is obstinacy. "I hate being beaten," is the cry of obstinacy. The failure is hated for its own sake, not for the sake of the lost end.

Masterfulness may lie at the bottom of much cruelty. In the pleasure of exercising power the sufferings of others are overlooked. This, in the case of children, is often due to ignorance, or to inability to use imagination. There is no knowledge that the "pet" dog or kitten is suffering when it is made to do this or that at the pleasure of its young overlord.

We have said that masterfulness is a highly pleasant and stimulating experience. It is not in itself an attitude which makes receiving instruction from others easy, but it favours self-education, experiment, and discovery. A person in whom the attitude is habitual will submit to instruction for the sake of proficiency. He is pupil to-day and professor to-morrow.

It is pre-eminently the emotional attitude for the group leader. It is the masterful individual who imposes his desires and pleasure upon his admiring followers. He dominates and he enjoys his domination.

Subjection.—As masterfulness is aroused by success, so subjection, or, as Professor McDougall terms it, Negative Self-feeling, is aroused by failure. Like masterfulness it implies an audience, and is evoked most easily by the difficulties and opposition raised by other persons. As masterfulness is heightened by the praise and admiration of others, so subjection is intensified by blame and criticism. Master-

fulness is expressed by expansiveness, subjection by contraction. The individual droops, the voice is low, the movements are often hesitating. Whereas the masterful person makes display, the submissive person shrinks from notice. The subjective attitude is painful and has inhibiting influence on enterprise or initiative. Within the group subjection is the attitude of the group as a whole towards the leader. It is an emotion which, like masterfulness, favours the awakening of self-consciousness. In both attitudes the attention of the subject is directed to the relation of others to self and of self to others. Knowledge of self and knowledge of others advance together. We see ourselves mirrored in the behaviour of those round us. The masterful person sees himself reflected in the admiration of his followers, the submissive person sees himself reflected in the fault-finding of his critics. The two attitudes are in contrast with sociality in this respect, for the easy give-and-take relation does not force self-consciousness on the individual. Where there is co-operation between the individual and his environment his interest is directed to outward events rather than introspectively to emotional responses. Shame is a development of subjection which arises with this consciousness of self and others. The individual sees himself as others see him and accepts their criticism. It is this acquiescence which arouses shame. We saw that the corresponding development from masterfulness is vanity. Envy is as closely connected with subjection as with masterfulness. The action which would secure a coveted position or a privilege will be inhibited, but the knowledge that these favours are being enjoyed by others will awaken envy in the submissive individual just as keenly as in the masterful spirit. The painfulness of facing opposition and overcoming difficulties may lead from subjection to fear.

Subjection is also an attitude which is favourable to instruction. The individual is receptive and offers no resistance to the ideas put forward by others. But though receptive he is lacking in initiative and will fail to make use of the ideas received. It follows that in relation to suggestibility the attitudes of masterfulness and subjection are in striking

contrast. Masterfulness makes suggestion difficult, whereas subjection favours the reception of exhibited values.

EXERCISES

1. Consider the following in relation to emotion and emotional moods :

(*a*) " My health certainly was very bad till I was nearer thirty than twenty years of age ; and never was poor mortal cursed with a more beggarly nervous system. The long years of indigestion by day and night-mare terrors are mournful to think of now. . . . Milk has radically disagreed with me, all my life ; but when I was a child, it was a thing unheard of for children not to be fed on milk : so, till I was old enough to have tea at breakfast I went on having a horrid lump at my throat for hours of every morning, and most terrific oppressions in the night. Sometimes the dim light of the windows in the night seemed to advance till it pressed upon my eyeballs, and then the windows would seem to recede to an infinite distance. If I laid my hand under my head on the pillow, the hand seemed to vanish almost to a point, while the head grew as big as a mountain. Sometimes I was panic struck at the head of the stairs, and was sure I could never get down ; and I could never cross the yard to the garden without flying and panting, and fearing to look behind, because a wild beast was after me. The starlight sky was the worst ; it was always coming down, to stifle and crush me, and rest upon my head. I do not remember any dread of thieves or ghosts in particular ; but things as I actually saw them were dreadful to me ; and it now appears to me that I had scarcely any respite from the terror " (Harriet Martineau : " Autobiography," pp. 10–11).

(*b*) " Our house was in a narrow street ; and all its windows, except two or three at the back, looked eastwards. It had no sun in the front rooms, except before breakfast in summer. One summer morning, I went into the drawing-room, which was not must used in those days, and saw a sight which made me hide my face in a chair, and scream with terror. The drops of the lustres on the mantelpiece, on which the sun was shining, were somehow set in motion, and the prismatic colours danced vehemently on the walls. I thought they were alive,—imps of some

sort; and I never dared go into that room alone in the morning, from that time forward. I am afraid I must own that my heart has beat, all my life long, at the dancing of prismatic colours on the wall" (*ibid.*, p. 16). Harriet Martineau was aged four at the time of this incident.

2. How might the fact that a little girl of 9 was (*a*) much better dressed than her schoolfellows, (*b*) more shabbily dressed, affect the social relations between herself and them.

3. As an officer of a troop of scouts or guides, or any similar organization, what would you do to check the leader of any group from being "too bossy"?

4. From your experience with individuals, point out defects in conduct and character which might be traceable to negative self-feeling.

5. Show how either anger or masterfulness can lead to an act of cruelty.

CHAPTER XI

THE UNCONSCIOUS AND ADOLESCENCE

THE UNCONSCIOUS

BEFORE considering the features of mental life which are characteristic of the period of adolescence we must enter upon some discussion of what is now popularly called "the unconscious." We have seen that the developing life of the individual owes much to native endowment; we have seen that there are situations which possess a primitive value prior to any acquired meaning in sense experience, situations, that is, which awaken conation and emotion. We have been concerned to show the rôle of such experience in the development of the individual's knowledge and control of his environment.

We have now to recognize that *primitive* values and *acquired* values may conflict. Let us refer again to the puppy and the door-mat. The door-mat has the primitive value of a furry "worriable" thing and the acquired value of "master's thing." The latter may come to overlie the former, and the decorum of the puppy's behaviour will give evidence of the fact. Yet one day the primitive value may receive some access of strength—perhaps from the physical fitness induced by a frosty morning—and thereupon the old tearing, biting response may be awakened by the sight of the door-mat. The puppy flings himself upon it with all the ardour of his untutored youth. So in the human being primitive values may be overlaid with acquired values without being replaced by them, and on occasion behaviour will bear testimony to the primitive value of a situation. To take a simple example. Table manners are the outcome of acquired values. They may be so well formed as to be easy and free from all hint of compulsion or restraint—may seem, in fact, "ingrained"; yet in the scramble of a foreign railway buffet, the food

situation may easily evoke the primitive behaviour of "snatching" and "devouring." Social environment and social tradition encrust primitive values so thickly with the culture and custom of the society into which the individual is born that it is difficult for us now to recognize what the full gamut of primitive values might have been without this complement. We have already seen in the foregoing chapters that the primitive may blend with the acquired in such a manner as to render the new value an extension or development of the original field. We have seen this in fear and in anger. We might see it also in disgust, which, though originally awakened only in connexion with taste, smell, and touch, is extended to things seen, and is transferred by analogy from things to conduct.

We recognize then, that primitive values may be enlarged by, or may be said to develop into, acquired values; that, in this sense, primitive values lie at the basis of culture and civilization. But we have also to recognize that primitive values may keep their place as springs of conduct ever at work in determining men's lives and actions, and yet be in conflict with acquired values.

We may seek to measure the greatness of primitive values by the width of the sphere of values derived from them or by the strength of the resistance overcome through their impulsion. Both criteria are important. Some writers have tried to select some one fundamental value and to reduce all others to it. Professor Freud would reduce all emotional and conational appeals ultimately to an appeal to sex. Professor Adler would put first the appeal to power, the impulse to dominate. Professor Jung would place first the appeal to self-preservation. Certain it is that situations awakening these emotions and impulses are among the most forceful to which man is subject, but all attempts to reduce primitive values to one inclusive category seem futile, for, even when combined, these three types of appeal may be far from exhausting primitive possibilities.

We need to refer again to the distinction between the structure of mind and the events of mental life. The individual in virtue of his native endowment has an initial

organization or structure of mind. We saw that we might conceive of every event which takes place in the mental life of an individual as due partly to the organization of his mind and partly to the factors of his environment that are operative upon him at the moment. We might term the structure of mind " the unconscious," and it is proposed to do so in these lectures. We need, however, to be quite clear as to the sense in which we term it unconscious. We mean that the structure of mind is never an event in mental life ; it never is, nor from its nature can be, experienced. It is the organization built up by the function or work of events in time, but *in itself it is of a different order from events.* When we refer to " the unconscious " we mean this organization of meanings and values (knowledge and character). We distinguish " the unconscious " in this sense from the subconscious, to which we have referred in connexion with attention, viz. that portion of the stream of mental events which is " beyond " introspective recognition, the present sensations or images, the present feeling or conation which elude the analytic scrutiny of introspection. The subconscious features of mental life are regarded as being events of the same order and nature as the events which are recognizable. They are present events of whose influence in mental life we can obtain indirect evidence, but thay are not of the abiding structure of mind, are not " the unconscious " spoken of above.

CURRENT THEORIES OF THE UNCONSCIOUS [1]

The meaning which we have assigned to the expression " the unconscious " is not the meaning given to the term in current psychology. There the expression is used loosely and in some cases with self-contradictory shades of meaning. It is used by Professor Freud for what may be termed a department of mind. The picture given us in his writing is of two levels of mind—the conscious and the unconscious. The latter is made up of contents which have been driven down or repressed from the higher or conscious level. The bulk of

[1] As the matter in this section is controversial a student may omit it on first reading the book.

these contents are infantile experiences having their root in the sex instinct. These experiences have been repressed through their conflict with the organized principles of society. These repressed tendencies are no longer in the realm of the individual's consciousness as experienced impulses, but are represented by Professor Freud as continuing to exist in the individual's unconscious. In addition to these "unfulfilled infantile wishes" the unconscious contains the ideas which the individual has repressed into the unconscious because of their painful character. Everything that is said to be forgotten, and that cannot be recalled by the normal efforts of recollection, has been repressed into the unconscious, where it enters into alliance with the repressed infantile wishes. The interest for Freudian psychology lies in the study of the forms or "mechanisms" by which these repressed wishes of the unconscious work their way through to the conscious level, notably the mechanism of the dream. To reach consciousness again and to overcome the resistance of the organized ideas of consciousness, which resistance is personified as the "censor," the contents of the unconscious disguise themselves and appear as the imagery of dreams. Because it is a manifestation of the unconscious a dream must not be taken at its surface value; it must be interpreted. Its "manifest content," however rational or irrational, is a disguise for the contents of the unconscious. The objects and incidents of the dream are thus symbols for the true latent content—the wishes of the unconscious. It is the aim of psycho-analysis to unravel the real significance of the dream and of other mechanisms of the unconscious.

The Freudian theory of the conscious and unconscious levels of mind arose out of medical practice, and it should not be forgotten that the whole aim of that practice is curative. Professor Freud believes that by getting into touch with the unconscious mind he is able to find the clue to the mental disturbances which show themselves in the ideas or conduct of his patients. His medical practice has been his guide to his psychological theories. We know that every scientific attempt to work backwards from present effects to past causes is beset with the difficulty known as "plurality of

causes." Put crudely, this means that any one of several causes may have produced a given effect. To appreciate the difficulty we may contrast the standpoint of a historian and a prophet. To the man of prophecy looking to the undetermined future the plurality of causes is a lodestar, but to the historian looking back on the particularity of the past it is a stone of stumbling. It is easy for the prophet to foreshadow the occurrence of catastrophic destruction within the coming decade, for if it does not occur in Europe it may occur in Asia or in the New World; if it is not caused by an earthquake, it may be caused by a flood, or by a hurricane or by a war. The historian, however, looking backward, finds it difficult to detect which of several possible events brought about a particular case of devastation in the early history of the world. Now, the practitioner who seeks an explanation for what he finds in his practice is in the position of the historian. He has to detect which of various possibilities is the true explanatory theory. It may well be that, notwithstanding the success attendant on psycho-analysis, the unconscious as conceived by Professor Freud is a "false cause."

To the present writer the Freudian theory appears to conflict with any intelligible view of mental life. The contents of the unconscious are represented as being processes which differ in no way *qua* processes from those of conscious life, save only in being unconscious. But how are we to conceive of the persistence of those repressed processes? Prior to their repression into the unconscious they were events in the life of the individual, the fundamental ones being events in the infantile life of the individual. What intelligible account can one give of the continued *existence* of these *events*? (Does not the very question contain self-contradictory ideas?) The individual's mental life develops, but these repressed wishes, according to the theory, persist as infantile wishes. Again, the infantile wishes are cited as the most important of the contents of the unconscious; nevertheless in the mechanism of the dreams the unconscious is credited with intelligence and design. There is nothing infantile in the skill with which the repressed wishes are masked or disguised in inoffensive imagery to enable them to pass "the censor." Whence comes this

intelligence? Again, if the contents of the unconscious are derived from the repressed experiences of the individual, how does symbolism arise? The unconscious could only use one content to symbolize another if the two contents were associated. Are we to conceive of this association as being effected in the unconscious or in the conscious mind? Presumably in the unconscious; but how? What is the bond between the repressed content and the image which symbolizes it? This image belongs more often than not to conscious mind. How have they been associated in the life of the individual? Over and over again in Freudian literature one finds the unconscious personified; it is treated as if it were an agent with far-seeing aims. It is an organizing power which has a larger share in determining the course of conscious life than the events within conscious experience. There is nothing in the Freudian conception of "repression" which gives us any explanation for such organization on the part of the unconscious.

Professor Jung has extended the Freudian conception of the unconscious by including in it not only the repressed wishes of the individual but also the impersonal unconscious of the race. This impersonal unconscious would include all that we have termed native endowment and much more besides. The individual in his unconscious possesses not only the innate tendencies for specific action and emotions, but also something which very closely resembles innate ideas. He is credited with tendencies for certain specific thoughts and images, namely, those said to be embodied in myth and primitive culture all the world over. Given this extended view of the unconscious, we may find an explanation both for the intelligent control exhibited by the unconscious and for its use of symbols. The intelligent control will be due to the intelligence of the race, while an innate association of symbol and meaning may be claimed in explanation of the symbolism of dreams.

It is certainly easier to fit theory to facts with this extended unconscious, but perhaps it is more difficult to render our conceptions precise. How does this body of tendencies to action and to emotion and this basis of knowledge come to be

unconscious in the individual ? We cannot give Freud's answer " Because it has been repressed from consciousness." Much of it has never been experienced by the individual and is racial in its significance. Is it then inherited ? When we try to conceive how this racial unconscious is related to the individual we meet with the difficulties of heredity in the " n "th degree.

Now it is permissible to think that the confusion in the Freudian conceptions and the vagueness in those of Jung and his followers are at least partially due to the failure to distinguish between the structure of mind and the events of mental life with their functions. In this age of psychoanalysis it may seem outrageous to declare that mental events are always passing episodes which persist nowhere ; to say that these events can only be unconscious in the sense of being beyond the detection of introspective analysis, but never in the sense of being persistent underground processes. Such a declaration is nevertheless the working hypothesis of this book. The events of mental life by their work or function contribute to the organization of mind. The organization it is which is persistent and structural, and which may be termed " unconscious." This epithet is not a simple privative. Structure is " unconscious " in the same manner as stones are " illogical." The character connoted by " conscious " in the one case and by " logical " in the other is inappropriate.

ADOLESCENCE

We may see how our hypothesis will serve us in dealing with the general characteristics of adolescent mental life. The period of adolescence is roughly the period of life from twelve to eighteen. Following on childhood it is a period of upheaval and of reconstruction, for childhood had a certain perfection of its own. The impulsive behaviour of the child met his needs ; he and his environment were in a sense adjusted. With adolescence there comes what looks like a break. In both bodily and mental life we recognize a lack of co-ordination. The individual and his environment, particularly his social environment, are out of step.

Adolescence is a period of rapid growth and change in the

body. There is increase in the size of the limbs, in the size of the heart, and concomitant changes in circulation. In the initial period the whole body is unstable. Its needs vary between excessive activity and complete rest; the regular rhythm of activity and rest is upset. Days of bodily exercise carried on to a point of exhaustion will be followed by a period of listless inactivity. The girl who to-day exhibits noisy tomboyism may to-morrow sink into indolent languor. The limbs seem only partly under control, old co-ordinations are disturbed by rapid growth; the result is awkwardness in movement and in bearing. Changes in circulation and unevenness in the demands on the resources of the body account for the blushing and general malaise exhibited on insignificant occasions. Tastes in food change, and the importance of providing food ample enough to keep pace with the growing needs of the body, and varied enough to meet the new desires, might be a text from which to preach to all the boarding schools in the country. Boys, and perhaps more particularly girls, are apt to " go off " their food, to be faddy, to eat less than they need of wholesome food, while they may be greedy for articles which have little food value but appeal to the palate.

Adolescence is above all the time when the body is developing its new functions and is liable to sickness and disease. The power of resistance is low, tendencies for epilepsy and hysteria frequently show themselves. M. Pierre Janet connects the latter with cerebral exhaustion. From thirteen to fifteen is a period when no great strain should be imposed upon the brain. The importance of restful sleep is great. The vivid dreams common at this period often leave the individual fatigued on waking, and the general routine of life should provide for long hours of sleep. Adolescence is the period wherein it is most desirable to establish good habits in relation to the changing functions of the body.

ADOLESCENCE AS THE AGE OF ROMANCE

Turning now to the mental life, we see that adolescence is the period for new experiments: it is the beginning of the

age of romance. Life is full of unknown possibilities; there is the spirit of adventure springing from the developing force of conation, which urges the individual forward to explore unknown territories. Imagination frees him from the limitations of sense; he finds new incentives to action in the value situations revealed in the world of ideas. Ideas come to him from books, from his companions, from the conversation of the "grown ups," from each new adventure which he himself makes into the unknown. The part played by books and companions can hardly be exaggerated, and to the stimulus of books one must now add the stimulus of the cinema. The stories told, or the descriptions given, furnish material for desires and aims which in their origin and in their satisfaction carry the individual beyond the bounds of his actual sense-given world.

The diversity of individual needs and the background of individual past sense experience make it almost impossible to say what will, and what will not, appeal to adolescent imagination. In his adventures into the new and strange, fictitious value will attach to anything which is "forbidden" or marked "dangerous." Such territories are a challenge to the advancing force of conation. Here is something hidden, of unknown attraction, here is a barrier or obstacle which must be broken down in order to satisfy the impulse which its very existence has excited.

With the spirit of romance come also artistic needs and cravings. Sights and sounds take on a new value—an artistic value. The social environment may have provided the child with pronouncements as to the beautiful and the ugly, and these dicta heretofore may have been accepted passively. At adolescence may come the first personal emotional experience of æsthetic value. The experience may be in connexion with other objective situations than those recognized by the accepted æsthetic judgment of his circle. The adolescent may find pleasure in combinations of colour or of sound which by the canons of good taste are crude or even vulgar. He may, on the other hand, have a finer æsthetic appreciation than the members of his social milieu, and find joy in some play of light and shadow, some line of

verse, which passes unnoticed by his associates. What is essential for his development is that he should realize the joy of appreciation, be thrilled by this experience or that, and that he should be hurt by the ugliness of objects and events quite apart from their material value or consequences.

KNOWLEDGE OF SELF AND OTHER SELVES

This is the period wherein develops reflection on the self and other selves. The individual definitely becomes a person. In childhood the child's self is that bit of his body which is concerned with knowing and acting on his world of things. He is his eye when he gazes at a balloon, his hand when whittling a stick. He is head and stomach when in bed with a bilious attack. To his eye the rest of his body is just a thing to be seen in the external world ; to his exploring hand the body is a thing to be touched like other things, but peculiar and different from other things in virtue of the double touch experiences which it furnishes, and of the pleasure or pain which may accompany the exploring touch. Peculiarly "me" will be those organic experiences which persist unaffected by his movements and by the consequent changes in the external world. The stability and relative independence of these experiences make them central to the bodily-self. At the perceptual level, "I" am my organic sensations and my active and cognitive sense experiences in exploring the sense world. When the world of ideas develops, the "I" is experienced as something other than the body. "I," the body, am here and now doing this, but there is memory of the "I" of yesterday, anticipation of the "I" of to-morrow, day dreams of what may be. There is a new core to experience, a centre of reference. This centre of reference blends with the old core of organic experience to become the inner-self. It is at this stage of development that common life with other selves can contribute much to a knowledge, as distinguished from an experience, of self. Others at first are bodily-selves. As his own bodily-self is experienced both in terms of the perceived external body and in terms of organic and muscular inner sensations, so likewise the individual is aware of the

total bodily-self of others as perceived body and suggested inner core. The sight of his own stretched out arm is part of a complex experience : vision of arm, tautness of muscles, strain in chest. It is a whole in which what he sees and what he " feels " are not separated. The sight of a stretched out arm in another suggests the same complexity. It must be remembered that the individual is never an isolated unit, but always surrounded by a social environment of selves. He shares his world of things with others ; his interest in the world co-operates or conflicts with their interests. Their values and their meanings influence his meanings and values. Clash of meaning or clash of value thrusts the sense experience and activities of others on his notice, and serves to reveal the core of inner experience and reference which is theirs. Every step that he takes in the knowledge of other selves carries with it a reflected knowledge of his own self, even if that knowledge is implicit. The tussle for a coveted object, wherein he learns of the strength of another's desire for this particular toy, makes clear to him his own wish for the same toy. The behaviour of others towards him is a mirror wherein he may see how they regard him. He reads therein that he is feared, shunned, liked, admired ; that he is expected to know this or that ; that he is expected to remember this or that ; that he is expected to do this or that. Of each point read in this social mirror there is confirmation or denial from his implicit self-knowledge. In knowing himself he knows them. In adolescence much of this implicit knowledge of self and other selves becomes explicit. What in childhood was taken for granted, as a background to knowledge of things and action, now becomes of interest for its own sake. He dwells upon the " self " that others reflect, the " self " that he experiences, and thereby comes to know this self explicitly. Of necessity, in so doing, he also contemplates the " other selves " bound up with his life. In adolescence new bodily experiences force themselves upon his attention. The adolescent may be embarrassed by his own awkwardness, by his appetite for food, by his activity, or by his listlessness. Side by side with knowledge of increasing power there will develop a knowledge of incompetence. Increasing power will

find an outlet in self-assertiveness. The boy or girl who is aggressive towards others unable to offer resistance becomes a tease or a bully. Self-assertiveness may also show as contra-suggestiveness. The boy or girl asserts the self by following the opposite of the line of conduct suggested by some companion or some person in authority. Again, self-assertiveness may take the form of doing something startling, outrageous. The individual must impress himself upon his world, even if this world disapprove of him. Many a boy or girl on the black list has come to this position through the desire for notoriety. Adolescence is the period for what may seem like startling inconsistencies. Side by side with self-assertiveness is to be found great reserve and sensitiveness. This is the outcome of the knowledge of limitations. In his new-found self-consciousness the individual fears criticism, dreads ridicule, is ashamed of not seeming like others of his set or class.

Mistrust of his adult social environment is also an occasion for withdrawal from the frank relationship of childhood. Mistrust may be the outcome of new knowledge of life, gained without adequate preparation. To learn suddenly of facts which have had no place whatever in the world as known is sufficient to occasion suspicion of, and resentment towards, those who have hitherto been trusted as safe guides. Mistrust and reserve may also be due to a further feature of adolescent life, viz. perplexity about standards.

PERPLEXITY ABOUT STANDARDS

The child accepted the standards of authority even when he rebelled against carrying out their dictates. He accepted the code of his social environment unquestioningly. But with reflection on self and other selves there comes perplexity. He is struck by the inconsistencies between precept and practice in his social world, by the variability in the standard; what is wrong in one person goes unreproved in another, e.g. swearing. The white lies of politeness do not fit into the scheme of truth telling. The "right thing" and "what everybody does" are puzzling synonyms. The difficulty of disentangling "good" and "evil," "right" and "wrong"

may lead to a state of thought wherein these judgments are relative—just a matter of how you look at it. There is the standard of those in authority—parents, schoolmasters or mistresses, the police, magistrates—and the standard of those whose praise or blame the adolescent appreciates: his own set.

To some this clash of claims is intolerable. We are able to distinguish two groups here.

(*a*) First, there are those who crave any guidance which will bring order out of chaos. This may lead to standards being adopted blindly. There is no sense of proportion, no grasp of what is important, what is unimportant. The details of conduct are treated as grave moral issues. A narrow rigidity with excessive conscientiousness may result. Here there is room for the so-called conflicts of the unconscious. With our claim that the unconscious is the structure or organization of mind, what do these conflicts mean? They mean that the past experience of impulsive life furnishes no natural support for the rigid code which the adolescent seeks to thrust upon his conative and intellectual life. He is endeavouring to make himself accept values which are artificial to him, from which he has never received any genuine affective or conative experience. He is also endeavouring to accept judgments for which his past experience can furnish no meaning. It will not be surprising if under these circumstances there is "conflict." A period of punctilious adherence to the standard, sweetened only by the satisfaction of adherence, may be swiftly followed by an outbreak of "the old Adam." It would be truer to speak of "lack of contact" than of "conflict." The ideas and values have no contact with the organization of mind. They have not been built into the old impulsive values and instinctive meanings of his childhood, and thus have no lasting hold upon the individual.

But the course here traced is not inevitable. The standard adopted, which lacks significance and value, may come to acquire both through some mediating link between new and old. It is here that hero-worship may render service to adolescent life. Whole-hearted devotion to some person, actual or legendary, living or dead, may give worth to what

otherwise is a formal and cold system of conduct. The values accepted are not merely superposed upon the values of past experience, but dovetailed into them; for in his enthusiasm the adolescent enters into the life of the hero and finds it good. He can only enter into this life through his own experiences, and these may be transformed in the process. He himself may come to feel the thrill of self-sacrifice, the exaltation of courage, the shame of falsehood as he follows the experiences of his hero. Often the value derived from hero-worship is more formal. There is no personal realization of value through entering into the experiences of the hero, but only an intellectual acceptance of his standard and scale. The hero is beloved or greatly admired, and in consequence his judgment is substituted for the adolescent's own judgment of any particular deed or object which comes in question. The boy or girl does not find this or that act "beautiful," this or that course "reasonable" in itself, this or that "right"; but X says it is beautiful or reasonable or right, and X's standard has been accepted. We may compare these cases of "derived" value with the cases of "derived" attention. We saw that "derived" attention might lead to "spontaneous" interest, and we may say that a parallel development may happen with regard to judgment and standards. The derived values that resolve conflict, or, to use our alternative expression, ensure contact with the organization already existing, may develop into independent values having worth in and for themselves.

(*b*) To turn to the second group of those who cannot sustain a conflict of standards. These are individuals in whom the group influence is strong. They may accept an absolute standard with a very restricted range of application, viz. that of the group. Outside this there is merely a code of convention or of convenience. For this type of adolescent the personal world is apt to be cleft into two, his own set and the rest of mankind (often characterized as "old"). Within his own set his standard applies strictly. There are absolute virtues and absolute vices; things "just" and things "unjust"; truth and falsehood; beauty and ugliness. The principles of judgment are absolute, though the principles themselves

are merely the expression of the collective practice of the set. There is no attempt at rationalization or justification in respect of the standard. It is accepted as binding. The ethical code accepted by many a public schoolboy will illustrate such an absolute standard applied within narrow limits. So too will the code of a band of hooligans. Sticking together with the members of your set would probably figure as a first-class duty in both codes. It would be accepted without reservation and also without any further principle behind it. "Sticking things through whatever the consequences" would also probably figure as a virtue for both groups. Truth speaking is a duty to members of one's set, A lie may be meritorious if used in the interests of the group against the outside public. If told merely to escape personal injury it may be condemned, not as an offence against truth, but as a failure in the duty of "sticking things through."

Honesty and dishonesty likewise take curious guises. There is great latitude as regards anything which can be regarded as common property; books, equipment, which each member alike may possess, are treated as common and appropriated freely. Any school, any workshop or corps, will provide evidence of this appropriation. But the set collectively will condemn and resist any appropriation by an "outsider," though they will not necessarily condemn a successful raid by themselves on the "common property" of another group. To have "pinched" something belonging to another group, even though in fact the property of an individual, is regarded in the light of "good hunting." To capture such a possession from an individual or a group who can be regarded as the "enemy" is highly meritorious. Personal possessions not on the line of common equipment are in a different category. Money, in particular, has a special place. The traditional standards in respect to honesty and dishonesty may be accepted for money when they hold for no other personal possession. Leaving out of consideration gangs organized on criminal lines, the boy or girl who takes money from another person's pocket or desk is recognized as a thief, while the boy or girl who copies another's sums or prose, or makes free use of his possessions, goes uncondemned.

This " group standard " morality is evidence of the force of the group in determining value, a force which increases with the growing realization of self and others. The tie of a group is formed in many different ways. There is the bond of youth against age, of those in subjection against those in authority. In many adolescent groupings the need of physical proximity is evident ; bosom companions must walk arm in arm ; the group must hold frequent meetings. The adolescent group rejoices in symbols of its own unity and of its separation from the rest of the social world. It delights in passwords, badges. In passing judgment from the standpoint of his group the individual is advancing from a purely subjective standard, based on his own personal experience, towards an objective standard based on common ends and ideals. His " altruism " is bounded by the limits of his chosen set, yet his judgment is not purely " egoistic." He cannot balance pros and cons beyond his ken, but his criticism is directed by the experience of himself and his set. He has no room for what he or they do not understand. Hence the cruelty and mercilessness of his judgments. So long as the action, person, or object does not interfere with him he ignores it ; when it conflicts with his opinions he has no scruples. There is black and there is white, but there is no grey within the field where he applies his standards.

In addition to the two types described there are the individuals who take their own way—" outlaws " for whom neither recognized morality nor the code of the group have any real worth. They pursue each end as it appeals to them without reference to any organization. There is no conflict because there is no objective standard. Strictly speaking, for such individuals there is no true membership of a society or participation in social life. They are " outsiders," and of all the juvenile delinquents they are ones who present the greatest problem to the social reformer.

At the other end of the scale are the individuals who are the salt of their generation. They do not resolve their conflict either by a mediating stage of hero-worship or by group morality or by any combination of these methods, but by sustained effort of thought. Such individuals, in contrast

to the first two types, may appear to play a lone hand. Comparing instances, analysing, reflecting on this or that, they arrive at principles which serve them as guides and by the help of which they steer their bark. These principles must have behind them realized values. Such values in relation to the values of impulsive life may be termed new. New values are built upon old ones in two ways.

(*a*) Through extension of sphere, as when the appeal is felt in a type of situation different from that which aroused it hitherto, as, for example, when fear is awakened by a different type of danger, moral instead of physical.

(*b*) Through a change in the kind of emotion aroused by situations. This change can be brought about through the influence of sentiments upon emotions. A discussion of this must be postponed until later.

In whichever way it may happen the result is an advance in the organization of mind. Principles replace precepts; from ideas grow ideals. Such development fits the individual to become the leader of a progressive movement.

ADOLESCENCE AND TRAINS OF IDEAS

(*a*) *Day-dreams.*—When we were dealing with trains of ideas we considered the general laws of suggestion or association and also the special conditions determinative of the actual line of association followed on a given occasion. A train of ideas may often be the working out of some impulse which fails to find satisfaction in the sense facts of perception. This is so in all day-dreams. Such trains of ideas are characteristic of adolescence. Viewed as a whole a day-dream appears to lack aim or purpose, yet in all its sections it satisfies emotional needs. In it idea has followed idea, suggested through direct or indirect connexion with a precedent member; and yet when one tries to re-track the pathway of suggestion one feels the force of Hobbes' description, " the wild ranging of the mind." No member of this day-dream finds its place therein by chance. To explain the riddle of why this idea, why that idea is a member of the train we have to look to the emotional needs of the day-dreamer, to his present

situation, to the extra-conscious (the experiences beyond introspective recognition), and to the unconscious (the organization of mind). We claimed that memory-images were made possible by past events, but in themselves were new happenings in mental life, events evoked by the suggesting conditions. Such, too, are all the images of the day-dream. We must be strictly on our guard against treating these images as a resurrection of past experiences. This is the fundamental error which mars much of the writing concerning the influence of the unconscious on the day-dream. Images are described as if they were the composite ghosts of experiences which have persisted since childhood, hiding somewhere, ready to pop out again on to the platform of conscious experience. In order to make it intelligible why these reappearing ghosts are different from what they were in their first youth, why they have lost many of their original features and acquired features from other experiences—have, in fact, transformed themselves—these writers find it necessary to claim for the ghosts a life-history in the unconscious mind. Sensations and images are treated not as events in life, but as substantial entities existing in the unconscious. Such a point of view is fundamentally at variance with the conception of mental life which we have adopted.

The wild ranging of the mind in adolescence is the necessary outcome of the spirit of adventure and of the new stores of knowledge. Increased knowledge of the world, knowledge of self and of other selves supply more and more threads to the web. There is thus a growing wealth of material at the service of the individual, while at the same time value situations do not drive to impulsive action with the same unequivocal urgency as in childhood. Attention can be maintained for longer trains of developing interest, and interest can find its satisfaction in ideas as well as in sense-given reality. Under the influence of some emotion a train of ideas once started follows the lines of suggestion, now here, now there, wherever satisfying progress is made. If the emotion changes, the drift of the train must change too. The influence of emotion on the character of the ideas in the train is reciprocated. On the one hand, a shift in emotion may

change the current of ideas; on the other hand, the ideas suggested by the emotion may themselves change the emotion and thereby change the direction of the trend. To take an example: depression due to failure in some enterprise may set the adolescent dreaming of his own disabilities. From remembrance of the failure he passes to the ideas of possible failure in some coming event, of what his parents would say, how X always enjoys another person's misfortunes, how he, the dreamer, would like to punch X's head. But here depression has given place to rancour and the train of ideas may pass on from ideas of failure and defect to ideas of teaching X to mind his own business, of the pleasure it would afford Y if X were taken down a peg. The idea of Y may start a new prompting—curiosity: the dreamer speculates as to why Y never has any letters, as to what sort of people his parents can be. With thought of parents may come again depression as the thought of his own parents and their disappointment recurs. The track followed may be influenced by some features in the images evoked to sustain the idea. These images may possess just the bare features required for the suggestion, or, by the close continuity of interest, the imagery may be richer or fuller than the suggesting idea requires; absence of control favours this by-play of imagery. In the above example the imagery of X may be just a jeering face; then of that same face both seen and punched as the dreamer "takes him down a peg." We may suppose that the thought of Y, on the other hand, is not just a vision of a smile on Y's face, for it has brought up the vision of Y turning away when letters are distributed. It is this image of Y which gives the new direction to the train. It awakens the curiosity which the actual sight has aroused in the past, and so determines the succeeding ideas. Verbal images may have the same consequences of by-play, not through richness in their own character but through equivocation in cognitional function. The unspoken, "I wish I were not such a fool," sustaining the idea which is the outcome of negative self-feeling, may perchance send the dreamer off to ideas of the circus ring. "Fool" may start reminiscences of childhood and distract him from his self-depreciation.

The personal world of self and others will figure largely in day-dreams of adolescence; so also will perplexities about standards. The dreamer's ideas may often seem like the shuttlecock sent to and fro in response to the impulse of now this set of values, now that. The decisions which cannot be shirked in the world of sense and action may be burked in the world of ideas. Futhermore, the world of dreams affords a field wherein the adolescent can, in part at least, satisfy the desires aroused by the new values of the enlarging world. The day-dream for this reason exhibits a certain degree of control. The individual may make an effort to keep on a given track, to resist by-ways, or again to recover a line from which he has departed, but of which he still experiences the attraction. In both cases alike the control points to a *vis a fronte*, since the strength of the impulse in a given direction is not measured by the urgency of any moment, taken in isolation, but by the urgency of the moment taken in relation to an "end" It is the organization of ideas, or the structure of the mind, which makes it possible for a given idea by its significance to draw upon the value belonging to other members of the same system. We shall see this more fully in Chapter XIV.

While day-dreams run their course the dreamer may carry on automatically some occupation in the sense world. Now and again the demands of this world may secure momentary attention, but they will do this without breaking in upon the train of ideas. Usually the sense occupation and the dream are distinct parallel series of events—the sense world in the margin, the dream in the focus; e.g. Hetty Sorrel's day-dream of her next meeting with Captain Donnithorne runs parallel with her occupation of butter-making in the Hall Farm dairy. Sometimes the things of the sense world are interpreted in terms of the dream, and receive by analogy the treatment appropriate to the dream. To take another example from "Adam Bede": the way in which Arthur Donnithorne urges his favourite mare to a gallop reflects the urgency with which he is precipitating events in his train of ideas; he is galloping over the painful letter to Hetty which shall break off their relations. But although day-dreams

influence reactions to the sense situation, the world of ideas never blends completely with the sense world, save in hallucination. The individual is conscious of the difference between the demands of the sense world and the call of his ideas. Sooner or later the challenge of the former will engage his attention and he will come back to earth.

(*b*) *The Dream of Sleep*.—We may compare with the day-dream the dream of sleep. The distinction of sense perception and idea is absent in the dreams which occur during sleep. There is no background of a sense world beside which the world of ideas is unreal, and to this fact the dreams of sleep owe their greater vividness. Whatever sense experiences occur during sleep—and these are fairly numerous since in sleep the gates of the special senses stand open and the organism furnishes its quota of general sensations—these sense events are interpreted wholly in terms of the dream.

The train of ideas in the sleep-dream are governed by the same conditions as the day-dream. The differences which exist are differences of degree rather than of kind. There is less control. The direction is determined by the *vis a tergo*. Each moment has its urgency in itself, relative only to the events which have led up to it and with which it is in continuity. The direction taken at any moment, then, is an indication of the comparative strength of the trend in progress and of the diverting trend. It is this fact which makes the study of dreams important for revealing the bare forcibility of emotion and impulse. Forcibility is determined by the same conditions as in perceptual life, where, as we have seen, the forcibility of, say, pugnacity at a given moment "d" is due not only to the external circumstances at the moment "d," but to the strength of the impulse, in the previous moments "a," "b," "c," leading to "d." There is, however, this very important distinction: in perceptual life what we have called "meaning" and "value" are closely interdependent; the affective attitude and the impulse experienced are in unity with "what is known"; e.g. it is a particular sound, and what it stands for, viz. air-raid, that arouses fear and flight. If the situation were cognized differently, i.e. had it a different "meaning," its "value"

would be different. In the dreams of sleep this close interdependence is lost. The check on meaning supplied by overt action and its consequences is removed. The ideas of the dream, regarded in their cognitional meaning, afford an uncertain clue to the trend of the dream and to its changes of direction. Hence the stress laid by those who analyse dreams on the distinction between the *latent* and the *manifest* content of the dream. The series of ideas which come before the sleeper constitute the manifest content, while the different emotional values and impulses at work determining the drift of the dream are the latent content, and it is this which it is of interest to discover. The analyst usually accounts for this discrepancy between manifest and latent content by treating the manifest content as a disguise cunningly put on by the ideas of the unconscious, in order to evade the censor of conscious life. In this text-book we cannot follow such a line of explanation, since we do not regard the images as entities which have emerged from an obscure existence in the unconscious. The images of the dream are events consequent on the train with its *vis a tergo*. No dream image is a disguise of something else. Why it is present rather than any other image is a question the answer to which must be looked for in the conditions of suggestion. It may well be that to the student of the dream some image other than the image recorded would seem more relevant to the trend; none the less the dream image *is* relevant or it would not be there. The link between " meaning " and " value " will be traceable, if the dream is truly interpreted. In the day-dream the normal relation between " value " and " meaning " is kept, as we have seen. There is no real discrepancy between latent and manifest content. This is because there is some control, even in the wild ranging of the mind; but in the dream of sleep there is absence of all control. Both the direction of an aim and the check arising from motor performance with consequential changes in the sense world are lacking. The interplay of emotional values will arouse impulses which will drive the train of ideas along *any possible line of direct or indirect association whereby the impulse may find a ready vent.* There is therefore no manifest relevance in the imagery, no

resistance of by-paths, no regard to a main topic. The dream is not governed by cognitional ends, but by forcibility of emotional values and impulses. In this sense the dream of sleep is a primitive phenomenon.

Into the technique of dream analysis we cannot enter here ; but it is necessary to say something of the influence both of day-dreams and of the dreams of sleep on conduct. Through the day-dream possibilities are explored, and in the exploration, as we have pointed out, new forms of satisfaction are found. This has its consequences on the values of the waking world. The day-dream may heighten the eagerness with which the adolescent seeks for situations akin to those of the dream ; may give increased perseverance in overcoming difficulties and resisting interference. The wild ranging of the mind in day-dreams has its fruits also in the nimbleness of wit and resourcefulness with which actual situations of life may be met ; dreaming may supply tools to thought. Should, however, the adolescent's real world be one in which the satisfaction of his emotional needs is difficult, the effect of day-dreams on the dreamer may be, not to prepare him for more vigorous and successful action in the world of sense reality, but to withdraw him more and more from that world. By finding his satisfaction in a world of dreams the adolescent may become more and more maladjusted to the physical and social world around him.

The dream of sleep does not seem to have its function in preparing for action or in giving flexibility to thought, but rather in giving expression to the force of emotions and impulses which find no satisfaction in the world of sense experiences. Here we must notice a special difference between the day-dream and the dream of sleep. In the day-dream the dreamer, in so far as he is in touch with the world of sense perception, has more or less the position of a spectator in relation to his world of ideas. Even when he dreams of events in which he is the actor, he is not wholly identified with that acting self ; it is the creature of his imagination. In the dreams of sleep, on the other hand, the dreamer is usually identified with the actor in the events of which he dreams. This identification of the dreamer with the actor

allows the dream to be an expression of the emotion and a working out of conation in a completer sense than the day-dream. This can have one of two effects, comparable to the two effects attendant on somatic resonance in emotion proper. On the one hand, the dream, as emotional expression, can be a vent for uncontrolled forces which do not find satisfaction in waking life ; the dream can let off steam, and do so without involving the consequences of overt action. But, on the other hand, the dream may augment the emotion or impulse of which it is the expression. Just as the outbursts of a passionate child may by their violence render him more and more hysterical, so the dream by giving play to the urgency of emotional need may increase its forcibility. The dream " satisfaction " increases the power of the need. In the first case, then, the dream stands as a buffer between waking conduct and the crude force of uncontrolled impulse ; in the second, the dream heightens this force. It is clear that in both cases the dreams of the adolescent have influence on his moral development, and by studying them the student may find the clue to the relative strength of various factors underlying conduct in waking life.

INTEREST IN THE OPPOSITE SEX

Side by side with the growing knowledge of self and other selves there develops a strong interest in the opposite sex. Many psychologists would regard this interest as present throughout life ; some regard it as developing only at adolescence. Be this as it may, the interest takes on a new guise at this period. The boy or girl whose relations to members of his social environment has turned on other factors than sex now shows a realization of the influence of this factor. This may entail a loss of the free give-and-take attitude between boys and girls themselves. There is a new awkwardness in their relationships. Like other characteristic traits of adolescence, the new interest gives rise to inconsistent behaviour. Shyness and withdrawal alternates with efforts to attract attention and even brazen effrontery. The boy who is embarrassed by a growth of limbs which has temporarily

outstripped his powers of co-ordination and control may to-day comport himself as a tongue-tied lout in the presence of his sisters' friends, while to-morrow he makes display of his increasing physical strength, his ability to do things. The girl similarly is now silent and clumsy, now giggling, half-inviting notice, half-shunning it; now, again, showing off some accomplishment or personal charm. Both boy and girl take on a new attitude towards adult members of their own and the opposite sex. Into the boy's tenderness for his mother, where this exists, comes a note of protectiveness. If his training has made him capable of it, chivalry will awaken within him. Into the girl's affection for her father comes a new desire to give him pleasure, and a new satisfaction in any expression of his tenderness towards her.

The girl's ability to please becomes of greater importance to her. She takes a fresh interest in her personal appearance and her clothes. Failure to win approval causes keen distress and mortification, which may show itself either by increased shyness and withdrawal from her social surroundings or by an aggressiveness born of resentment to the criticism.

In both boys and girls during adolescence there is a great need of affection from their immediate environment. The mistrust whether of others or of self so frequent in the adolescent renders a sustaining influence vitally important. Nothing can supply this so adequately as the background of a family wherein there are strong ties of affection. For with the interest in the other sex there is involved interest in sexual matters; curiosity in, and knowledge of, the facts of sexual relations comes as part of the expanding knowledge of the world. The healthiness or unhealthiness of this curiosity will depend very much on the relation of the boy or girl to his adult social circle and on the attitude of the adolescent group to which the boy or girl belongs. The influence of a group for harm is very potent in sex matters. The individual as a member of an adolescent group is incited to speech and behaviour which he would never indulge in apart from the group. Excitement spreads, one member vies with another in daring and in outraging the restrictions imposed by the world of authority.

To both boy and girl the occupations of men and women acquire a new interest. The boy no longer wants to be an engine-driver because of his delight in trains, unless indeed he belongs to the blessed few who pursue their first love through life. An occupation is seen in a new setting—a social setting. He is interested in what men of his class and set do. The question, " What will you do when you grow up ? " takes on a new light. The girl likewise looks forward to the future with the eyes of a woman. The thoughts of marriage figure more largely in her meditations than in those of her male contemporary.

ADOLESCENCE AND DELINQUENCY

A knowledge of the characteristics of adolescence is essential for understanding juvenile delinquency.[1] This may be shown by referring to three of the cases analysed in the excellent publication of " The Judge Baker Foundation," Boston, U.S.A. (" Case Histories," Series I.)

Case 6. John Smith ; sixteen years nine months. Both parents American of mixed ancestry—English and Irish. The case illustrates the influence of the group on the individual. The delinquencies standing against the boy were : stealing tools from a motor-car and injuring it by trying to start it, tampering with a railway signal, larceny from shops, and twice setting fire to a school. The parents reported that when John was about ten he became acquainted with a boy Mack, and that, although they tried to prevent it, the boy was always with Mack and his pals. When after his first offence John was sent away to an industrial school, he improved. Shortly after his return on parole he fell in again with another bad group and got into further trouble. The boy himself, when he was finally drafted to the Judge Baker Foundation, attributed his troubles to his associates. He agreed that when he lived at X he used " to go around with a bad bunch." His main pal was Wall. " He was a guy who was into everything, but he never got sent away. He is

[1] The student interested in this subject should consult " The Young Delinquent " (University of London Press), by Professor C. Burt. This valuable book will prove a mine of information

working in the X bank now. I guess he's done better." Then there was Mack. "He got sent to the Island down in New York." The Foundation reports: "We made every effort now to understand some of these beginnings, and we got very definite statements. He never was in anything that was bad until they moved to a certain neighbourhood in X. That is where he first knew Mack, and through him he knew Wall. But another fellow was the leader of the boys. All these boys used to hook school and they got him started. He thinks that if it hadn't been for this truancy that started then, he would be in high school now."

Case 8. Olaf Kellman; aged fifteen years five months. Born U.S.A. Father born in Austria, mother born in Sweden. This case shows the same general features as the preceding. Delinquencies were: truancy, stealing, larceny. The boy was intelligent and good at school until the age of twelve when he became associated with the "Downey Street" crowd. This was a group of about twenty boys without any recognized leader. The group interest which kept them together was recounting scrapes and planning further mischief. They do not seem to have gambled and did not indulge in much drinking. Their conversation was low, but they are not known to have associated with girls or to have practised bad habits. As a group they were loyal to one another. Olaf and others were sent to a reformatory for trouble on a railway. The result of this may be given in the boy's own words: "It don't do you any good. You know how to crack a safe when you come out and lots of other things. Of course they watch you and you have to be careful because there are so many stools —pardon me, I mean tale bearers. It's Saturday and Sunday afternoons that they do the harm; that's when they talk. Every fellow tells the worst that he's done." When, on leaving, Olaf was separated from the other members of the gang and put into the navy, he did well. Unfortunately he was discharged through illness after seventeen months. He returned home and tried to run straight, but he failed to find employment and fell in with members of the old gang and became implicated in further troubles.

The Foundation comments that the treatment which would

have been helpful in both the cases was removal to a different neighbourhood and a break with associations.

Case 9. Tillie; aged thirteen. Love of finery and interest in the other sex, combined with the absence of sensible home treatment to counteract the influence of bad companions, explain the troubles into which this girl fell. She began by stealing from her own people in order to have money to spend on dress. "I like pretty things." She picked up knowledge on sex matters from the quarrels of a man and his wife living in the same tenement house. She also heard bad stories from other girls. At a holiday home she learnt from another girl how she picked up with sailors and soldiers in the streets, and on her return Tillie did likewise. She did not make appointments with any of them, except one man, whom she met regularly, and with whom she spent the night. She went to live with him for three days and seems to have been fond of him. At first she would not take money from him, but later did so, because she could use it to buy pretty clothes. She grew tired of living with this sailor, but was afraid to go home as she was unhappy there. In later years, when she was happily settled, the girl attributed the delinquencies of this period to bad companions, and also to the way her first escapades were treated in her home. "All they did was to scold and holler at me, and all that does is to make a girl worse." Her mother learnt wisdom, however, and treated a younger sister more sensibly, giving her the information necessary for facing life intelligently. Tillie herself was able to help by making her own married home a place where her sister could meet young people of both sexes in free social intercourse. She realized how much she had lost by never having had such an opportunity.

ILLUSTRATIONS

Autobiography will furnish illustrations of some of the features in adolescent life which have been stressed in this chapter.

I. *The Awakening of Aesthetic Emotions and Perplexity about Standards.*

(*a*) "One evening my Father took down his Virgil . . . oblivious of my presence, he began to chant the adorable verses by memory.

"'Tityre, tu patulae recubans sub tegmine fagi,'

he warbled; and I stopped my play, and listened as if to a nightingale till he reached

"'tu, Tityre, lentus in umbra
Formosam resonare doces Amaryllida silvas.'

"'O, Papa, what is that?' I could not prevent myself from asking. He translated the verses, he explained their meaning, but his exposition gave me little interest. . . . But a miracle had been revealed to me, the incalculable, the amazing beauty which could exist in the sound of verses. . . . I persuaded my Father, who was a little astonished at my insistence, to repeat the lines over and over again. At last my brain caught them, and as I walked in Benny's garden, or hung over the tidal pool at the edge of the sea, all my inner being used to ring out with the sound of

"'Formosam resonare doces Amaryllida silvas.'"

(Gosse: "Father and Son," pp. 155, 156. Quoted by permission of William Heinemann, Ltd. Age of son at this time about 10.)

(*b*) "My Father read the verse" (poems of Scott) "admirably, with a full . . . perception of the metre as well as of the rhythm, rolling the rhymes and glorying in the proper names. He began, and it was a happy choice, with 'The Lady of the Lake.' It gave me singular pleasure to hear his large voice do justice to 'Duncrannon,' and 'Cambus Kenneth,' and to wake the echoes with 'Roderigh Vich Alphine dhu, ho! iereo!' I almost gasped with excitement, while a shudder floated down my backbone when we came to:

"'A sharp and shrieking echo gave,
Coir-Uriskin thy goblin cave!
And the grey pass where the birches wave,
On Beala-nam-bo'—

a passage which seemed to me to achieve the ideal of sublime romance. My thoughts were occupied all day long with the adventures of Fitzjames and the denizens of Ellen's Isle. It became an obsession, and when I was asked whether I remembered the name of the cottage where the minister of the Bible Christians lodged, I answered, dreamily, 'Yes,—Beala-nam-bo'" (*ibid.*, pp. 221–222).

cf. " When I was but thirteen or so
I went into a golden land
Chimborazo, Cotopaxi
Took me by the hand.—W. J. TURNER.

(*c*) " . . . My mother then received from her earlier home certain volumes, among which was a gaudy gift-book of some kind, containing a few steel engravings of statues.

" These attracted me violently, and here for the first time I gazed on Apollo with his proud gesture, Venus in her undulations, the kirtled shape of Diana, and Jupiter voluminously bearded. Very little information, and that to me not intelligible, was given in the text, but these were said to be figures of the old Greek gods. I asked my Father to tell me about these ' old Greek gods.' His answer was direct and disconcerting. He said—how I recollect the place and time, early in the morning, as I stood beside the window in our garish breakfast-room—he said that the so-called gods of the Greeks were the shadows cast by the vices of the heathen and reflected their infamous lives ; ' It was for such things as these that God poured down brimstone and fire on the Cities of the Plain, and there is nothing in the legends of these gods, or rather devils, that it is not better for a Christian not to know.' His face blazed white with Puritan fury as he said this—I see him now in my mind's eye, in his violent emotion. You might have thought that he had himself escaped with horror from some Hellenic hippodrome.

" My Father's prestige was by this time considerably lessened in my mind, and though I loved and admired him, I had now long ceased to hold him infallible. I did not accept his condemnation of the Greeks, although I bowed to it. In private I returned to examine my steel engravings of the statues, and I reflected that they were too beautiful to be so wicked as my Father thought they were. The dangerous and pagan notion that beauty palliates evil budded in my mind, without any external suggestion, and by this reflection alone I was still further sundered from the faith in which I had been trained. I gathered very diligently all I could pick up about the Greek gods and their statues ; it was not much, it was indeed ludicrously little and false, but it was a germ. . . .

" Among the Saints in our village there lived a shoemaker and his wife, who had one daughter, Susan Flood. . . . But about the time I speak of, Susan Flood went up to London to pay a visit to an unconverted uncle and aunt. It was first whispered

among us, and then openly stated, that these relatives had taken her to the Crystal Palace, where, in passing through the Sculpture Gallery, Susan's sense of decency had been so grievously affronted, that she had smashed the naked figures with the handle of her parasol, before her horrified companions could stop her. She had, in fact, run amok among the statuary, and had, to the intense chagrin of her uncle and aunt, very worthy persons, been arrested and brought before a magistrate, who dismissed her with a warning to her relations, that she had better be sent home to Devonshire and 'looked after.' Susan Flood's return to us, however, was a triumph. . . .

"There was held a meeting of the elders in our drawing-room to discuss it, and I contrived to be present, though out of observation. . . . As for me, I had gathered by persistent inquiry enough information to know that what her sacrilegious parasol had attacked were bodies of my mysterious friends, the Greek gods, and if all the rest of the village applauded iconoclastic Susan, I at least would be ardent on the other side . . ." (*ibid.*, pp. 242–246. Age about 12).

II. *Dream Imagery. Symbolism.*

(*a*) " . . . Although I had scarcely felt frightened at the time, doubtless my nerves were shaken by this escapade, and it may have had something to do with the recurrence of the distressing visions from which I had suffered as a very little child. These came back, with a force and expansion due to my increased maturity. I hardly laid my head down on the pillow, than, as it seemed to me, I was taking part in a mad gallop through space. Some force, which had tight hold of me, so that I felt myself an atom in its grasp, was hurrying me on, over an endless slender bridge, under which on either side a loud torrent rushed at a vertiginous depth below. At first our helpless flight,—for I was bound hand and foot like Mazeppa,—proceeded in a straight line, but presently it began to curve, as we raced and roared along, in what gradually became a monstrous vortex, reverberant with noises, loud with light, while, as we proceeded, enormous concentric circles engulfed us, and wheeled above and about us. It seemed as if we,—I, that is, and the undefined force which carried me,—were pushing feverishly on towards a goal which our whole concentrated energies were bent on reaching, but which a frenzied despair in my heart told me we never could reach, yet the attainment of which alone could save us from destruction. Far away, in the pulsation of the great luminous whorls, I could just see

that goal, a ruby-coloured point waxing and waning, and it bore, or to be exact it consisted of, the letters of the word CARMINE. . . . The fact that the word 'CARMINE' appeared as the goal of my visionary pursuits is not so inexplicable as it may seem. My Father was at this time producing numerous water-colour drawings of minute and even of microscopic forms of life. These he executed in the manner of miniature, with an amazing fidelity of form and with a brilliancy of colour which remains unfaded after fifty years. By far the most costly of his pigments was the intense crimson which is manufactured out of the very spirit and essence of cochineal. I had lately become a fervent imitator of his works of art, and I was allowed to use all of his colours, except one; I was strictly forbidden to let a hair of my paint-brush touch the little mass of carmine which was all that he possessed. We believed, but I do not know whether this could be the fact, that carmine of this superlative quality was sold at a guinea a cake. 'Carmine,' therefore, became my shibboleth of self-indulgence; it was a symbol of all that taste and art and wealth could combine to produce." (*ibid.*, pp. 139, 140, 144 and 145. Age under 12.)

This dream illustrates very well the points mentioned above. The author himself explains the association which renders " carmine " the symbol of self-indulgence. The mad gallop through space may partly come from the escapade alluded to, an occasion on which he had been taken out of chapel by a half-witted person and pursued by members of the congregation, but it probably owes part of its vividness to general organic sensations. It may well symbolize the feverish pressing forward of adolescent life, while the bondage of hands and feet may symbolize the restrictions with which his narrow life was hedged about, and against which the son must have vainly contended. In connexion with his painting the father employed the son, by reason of his keen, short-sighted vision, to report on the structure and behaviour of the small creatures collected on the seashore. One may wonder whether the imagery of the concentric circles of the vortex may not have been due to his experiences in bending over the water of the dishes containing these creatures. He tells us that he peered so closely that his nose often touched the surface of the water.

(*b*) " But this winter of 1833–4 was particularly wet and rainy, and there were an unusual number of deaths in the village. A dreary season it was to the family in the parsonage : their usual walks obstructed by the spongy state of the moors—the passing and funeral bells so frequently tolling, and filling the heavy air with their mournful sound—and, when they were still, the ' chip, chip ' of the mason, as he cut the grave-stones in a shed close by. In many, living, as it were, in a churchyard, and with all the sights and sounds connected with the last offices to the dead things of every-day occurrence, the very familiarity would have bred indifference. But it was otherwise with Charlotte Brontë. One of her friends says :—' I have seen her turn pale and feel faint when, in Hartshead church, some one accidentally remarked that we were walking over graves. Charlotte was certainly afraid of death. Not only of dead bodies, or dying people. She dreaded it as something horrible. She thought we did not know how long the ' moment of dissolution ' might really be, or how terrible. This was just such a terror as only hypochondriacs can provide for themselves. She told me long ago that a misfortune was often preceded by the dream frequently repeated which she gives to ' Jane Eyre,' of carrying a little wailing child, and being unable to still it. She described herself as having the most painful sense of pity for the little thing, lying inert, as sick children do, while she walked about in some gloomy place with it, such as the aisle of Haworth Church. The misfortunes she mentioned were not always to herself. She thought such sensitiveness to omens was like the cholera, present to susceptible people,—some feeling more, some less " (Mrs. Gaskell's, " Life of Charlotte Brontë," p. 92. Age of C. B., 16–17.)

We may conjecture that the wailing child whom she cannot still, comes to Charlotte as a symbol of misfortune from experiences of early life. It may well epitomize scenes at the school Cowan Bridge (the " Low Wood " of " Jane Eyre ") and in particular the sufferings of her sister Maria (the " Helen Burn " of " Jane Eyre "), which she was powerless to relieve. Mrs. Gaskell gives us this picture of a scene which occurred when Charlotte was aged eleven :

" One of their fellow-pupils, among other statements even worse, gives me the following :—The dormitory in which Maria

slept was a long room, holding a row of narrow little beds on each side, occupied by the pupils ; and at the end of this dormitory there was a small bed-chamber opening out of it, appropriated to the use of Miss Scatcherd. Maria's bed stood nearest to the door of this room. One morning after she had become so seriously unwell as to have had a blister applied to her side (the sore from which was not perfectly healed), when the getting-up bell was heard, poor Maria moaned out that she was so ill, so very ill, she wished she might stop in bed ; and some of the girls urged her to do so, and said they would explain it all to Miss Temple, the superintendent. But Miss Scatcherd was close at hand, and her anger would have to be faced before Miss Temple's kind thoughtfulness could interfere ; so the sick child began to dress, shivering with cold, as, without leaving her bed, she slowly put on her black worsted stockings over her thin white legs (my informant spoke as if she saw it yet, and her whole face flushed out undying indignation). Just then Miss Scatcherd issued from her room, and, without asking for a word of explanation from the sick and frightened girl, she took her by the arm, on the side to which the blister had been applied, and by one vigorous movement whirled her out into the middle of the floor, abusing her all the time for dirty and untidy habits. There she left her. My informant says, Maria hardly spoke, except to beg some of the more indignant girls to be calm ; but, in slow, trembling movements, with many a pause, she went down-stairs at last—and was punished for being late.

" Any one may fancy how such an event as this would rankle in Charlotte's mind. I only wonder that she did not remonstrate against her father's decision to send her and Emily back to Cowan Bridge, after Maria's and Elizabeth's deaths. But frequently children are unconscious of the effect which some of their simple revelations would have in altering the opinions entertained by their friends of the persons placed around them " (*ibid.*, p. 51).

Castle Building.

(*c*) " The play of the ' Islanders ' was formed in December, 1827, in the following manner. One night, about the time when the cold sleet and stormy fogs of November are succeeded by the snowstorms, and high piercing night winds of confirmed winter, we were all sitting round the warm blazing kitchen fire, having just concluded a quarrel with Tabby concerning the propriety of lighting a candle, from which she came off victorious, no candle having been produced. A long pause succeeded, which was at

last broken by Branwell, saying in a lazy manner, ' I don't know what to do.' This was echoed by Emily and Anne.

" Tabby. ' Wha ya may go t' bed.'

" Branwell. ' I'd rather do anything than that.'

" Charlotte. ' Why are you so glum to-night, Tabby ? Oh ! suppose we had each an island of our own.'

" Branwell. ' If we had I would choose the Island of Man.'

" Charlotte. ' And I would choose the Isle of Wight.'

" Emily. ' The Isle of Arran for me.'

" Anne. ' And mine shall be Guernsey.'

" We then chose who should be chief men in our islands. Branwell chose John Bull, Astley Cooper, and Leigh Hunt; Emily, Walter Scott, Mr. Lockhart, Johnny Lockhart; Anne, Michael Sadler, Lord Bentinck, Sir Henry Halford. I chose the Duke of Wellington, and two sons Christopher North and Co., and Mr. Abernethy. Here our conversation was interrupted by the, to us, dismal sound of the clock striking seven, and we were summoned off to bed. The next day we added many others to our list of men, till we got almost all the chief men of the kingdom " (*ibid.*, p. 60. Age 11).

" . . . This habit of ' making out ' interests for themselves, that most children get who have none in actual life, was very strong in her. The whole family used to ' make out ' histories, and invent characters and events. I told her sometimes they were like growing potatoes in a cellar. She said, sadly, ' Yes ! I know we are ! ' " (*ibid.*, p. 76).

III. *Interest in the opposite sex.*

We may illustrate this from Pierre Loti's autobiographical account of his first love episode when a boy of sixteen.

(*d*) " The beautiful summer-evening sun was beginning to set. I had just joined two or three of my brother-in-law's friends sitting on a seat under the shadow of the lime trees on the terrace and they were talking among themselves of a certain handsome gipsy girl, shy and unapproachable. Her people had encamped two or three days ago near the approach to the forest. ' Ah, upon my word,' said one of the men present, ' the proverb is true, talk of the devil '——

" Even when she was some way off, just coming into view, this unexpected apparition (evidently their handsome gipsy girl) appeared supremely beautiful in my eyes. With unrestrainable

boldness I could not help going up quite close to her, while she offered some rush baskets for sale to a severe servant maid, who wore a Gascony kerchief on her head and was called Bertrade. She turned her away contemptuously. This gipsy girl was perhaps eighteen or twenty, a little older than I who was only sixteen. She was very sunburnt, the colour of old Etruscan pottery, with a skin wonderfully fine in texture. Her poor dress of thin cotton material, marvellously neat and clean, clung almost too closely about the statuesque outlines of her young bosom which, wholly unconfined, was traceable beneath it. Her thick black hair was fastened up with glittering pins. In her little ears she had great rings of gold and round her neck, a fichu of red silk. What fascinated me more than aught else was the depth of her black eyes. There may have been nothing behind them. Who knows? But one would have said that all the sensual mysticism of the East was hidden there. . . . At the rebuff of the servant she went away silently and haughtily like an insulted queen. She had, however, at once taken in my wondering and ardent admiration, for, before she went out of sight, she twice turned her beautiful little head to look at me again. I saw very clearly (and this quite completed my conquest) that her last look, which was for me alone, relaxed into a flickering smile.

" When the starry summer night had come and I had gone up to my little white bedroom, I remained for a long time at the open window resting my elbow on the massive stone sill which the houses of those days used to have. . . . Ah! how well I can still remember that hot night on which the magic spell began. The forest, the forest, now it was tenanted by a being who held me completely enthralled. No doubt, not far from here in the open space they had shown me, at this very hour, the gipsy girl was sleeping on the mossy ground, or more likely in her caravan, either alone or in the tawny arms of one of the gipsy tribe. Towards the end of the night a dream bewitched my slumbers. I fancied myself in the midst of impenetrable forests, in the gloom, beating out a path with great difficulty through the brushwood and reeds. I was conscious of shadowy beings going in the same direction as myself. By degrees, these companions of my difficult road revealed themselves as the gipsies running away. Soon I became conscious of her, the beautiful gipsy girl, struggling at my side with the bindweeds which twined themselves more and more round our feet. When at length we had fallen down among the entangled rushes, I took her in my arms and, as I touched

her, I felt myself suddenly grow weak, smitten by some exquisite mortal sickness.

From the moment that the morning sun reappeared in my homely white bedroom I was filled with mad longing to see her again. . . . I set out early for the forest. . . . The gipsy girl of yesterday and of last night was weaving baskets, seated with the grace of a young goddess, on the ground which was covered with lichen, moss, and fine grass. . . . As might be expected I went away without having said anything to her, but intoxicated by her scarcely perceptible and enigmatical smile wherein there was at once both consent and irony.

" The spell which we had cast on each other lasted in this way for five or six days without our having exchanged a word. . . . At last on a very hot August afternoon the inevitable catastrophe came with bewildering suddenness. It happened among tangles of branches and reeds like those of my dream. . . . I had just seated myself there in the green darkness, because I knew this was the place where she was in the habit of gathering her rushes, . . . when at length she stopped near me. I screwed up my courage to touch her hand. . . . She drew me towards her imperceptibly, as a sign that I should get up, and I got up obediently. I had now completely lost my head. I experienced for the first time a rapturous delirium. Standing before her, I threw my arms round her, while she put hers round my neck. She wore all the time the same smile, consenting yet half mocking, and she preserved the same silence. Never yet had I heard the sound of her voice when my mouth passionately rested on hers. At the touch my body was filled with the tremors of a great fever " (" La Prime Jeunesse" Pierre Loti. Extracts from chapters 25, 26, 27 and 28.)

One may contrast the free boy-and-girl relationship shown in (*b*) with the embarrassment of adolescence described in (*c*).

(*b*) " ' Well run away and dance. See,' she added on perceiving myself, ' here is a cavalier ready waiting for you.'

" Sonetchka gave me her hand, and we darted off to the salon. The wine, added to Sonetchka's presence and gaiety, had at once made me forget all about the unfortunate end of the mazurka. I kept executing the most splendid feats with my legs—now imitating a horse as he throws out his hoofs in the trot, now stamping like a sheep infuriated at a dog, and all the while laughing regardless of appearances.

"Sonetchka also laughed unceasingly, whether we were whirling round in a circle or whether we stood still to watch an old lady whose painful movements with her feet showed the difficulty she had in walking. Finally Sonetchka nearly died of merriment when I jumped half-way to the ceiling in proof of my skill.

"As I passed a mirror in Grandmamma's boudoir and glanced at myself I could see that my face was all in a perspiration and my hair dishevelled—the top-knot, in particular, being more erect than ever. Yet my general appearance looked so happy, healthy, and good-tempered that I felt wholly pleased with myself.

"'If I were always as I am now,' I thought, 'I might yet be able to please people with my looks.' Yet as soon as I glanced at my partner's face again, and saw there not only the expression of happiness, health, and good temper which had just pleased me in my own, but also a fresh and enchanting beauty besides, I felt dissatisfied with myself again. I understood how silly of me it was to hope to attract the attention of such a wonderful being as Sonetchka. I could not hope for reciprocity—could not even think of it, yet my heart was overflowing with happiness. I could not imagine that the feeling of love which was filling my soul so pleasantly could require any happiness still greater, or wish for more than that that happiness should never cease. I felt perfectly contented. My heart beat like that of a dove, with the blood constantly flowing back to it, and I almost wept for joy.

"As we passed through the hall and peered into a little dark store-room beneath the staircase I thought: What bliss it would be if I could pass the rest of my life with her in that dark corner, and never let anybody know that we were there!" . . .

(*c*) "It was now three years since I had seen Sonetchka, and my love for her had long become a thing of the past, yet there still lingered in my heart a sort of clear, touching recollection of our bygone childish affection. At intervals, also, during those three years, I had found myself recalling her memory with such force and vividness that I had actually shed tears, and imagined myself to be in love with her again, but those occasions had not lasted more than a few minutes at a time, and had been long in recurring.

"I knew that Sonetchka and her mother had been abroad—that, in fact, they had been so for the last two years. Also, I had heard that they had been in a carriage accident, and that Sonetchka's face had been so badly cut with the broken glass that

her beauty was marred. . . . After five minutes the door leading into the salon was opened by the page boy, who then conducted me into a neat, but not richly furnished, drawing-room, where presently I was joined by Sonetchka.

" She was now seventeen years old, and very small and thin, as well as of an unhealthy pallor of face. No scars at all were visible, however, and the beautiful, prominent eyes and bright, cheerful smile were the same as I had known and loved in my childhood. I had not expected her to look at all like this, and therefore could not at once lavish upon her the sentiment which I had been preparing on the way. She gave me her hand in the English fashion (which was then as much a novelty as a door-bell), and, bestowing upon mine a frank squeeze, sat down on the sofa by my side.

" Ah ! how glad I am to see you, my dear Nicolas ! ' she said, as she looked me in the face with an expression of pleasure so sincere that in the words " my dear Nicolas " I caught the purely friendly rather than the patronizing note. To my surprise she seemed to me simpler, kinder, and more sisterly after her foreign tour than she had been before it. True, I could now see that she had two small scars between her nose and temples, but her wonderful eyes and smile fitted in exactly with my recollections, and shone as of old.

" ' But how greatly you have changed ! ' she went on. ' You are quite grown-up now. And I—I—well, what do you think of me ? '

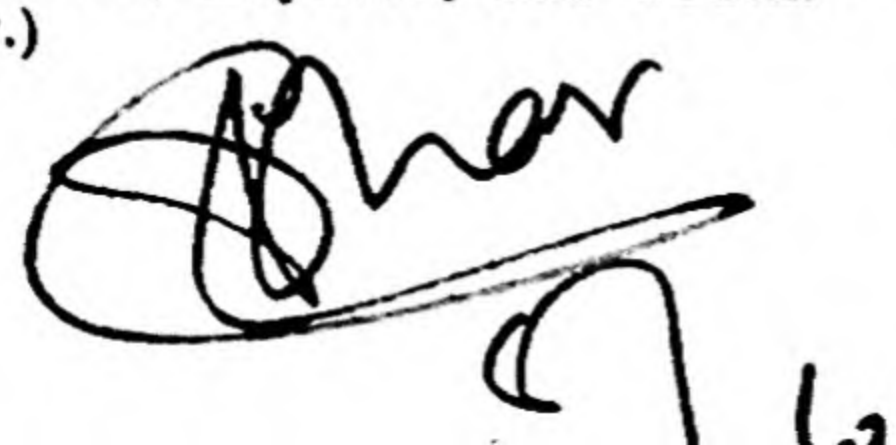
" ' I should never have known you,' I replied, despite the fact that at the moment I was thinking that I should have known her anywhere and always.

" ' Why ? Am I grown so ugly ? ' she inquired with a movement of her head.

" ' Oh, no, decidedly not ! ' I hastened to reply. ' But you have grown taller and older. As for being uglier, why, you are even——'

" ' Yes, yes ; never mind. Do you remember our dances and games. . . .' While she had been speaking I had been thinking over my position at the present moment, and had come to the conclusion that I was in love with her. The instant, however, that I arrived at that result my careless, happy mood vanished, a mist seemed to arrive before me which concealed even her eyes and smile, and, blushing hotly, I became tongue-tied and ill-at-ease. . . . Still I could not answer her. The next moment I was relieved from this awkward position by the entry of old

Madame Valakhin into the room. Rising, I bowed, and straightway recovered my faculty of speech. On the other hand, an extraordinary change now took place in Sonetchka. All her gaiety and bonhomie disappeared, her smile became quite a different one, and, except for the point of her shortness of stature, she became just the lady from abroad whom I had expected to find in her. Yet for this change there was no apparent reason, since her mother smiled every whit as pleasantly, and expressed in her every movement just the same benignity, as of old. Seating herself in her arm-chair, the old lady signed to me to come and sit beside her ; after which she said something to her daughter in English, and Sonetchka left the room—a fact which still further helped to relieve me. Madame then inquired after my father and brother, and passed on to speak of her great bereavement—the loss of her husband. Presently, however, she seemed to become sensible of the fact that I was not helping much in the conversation, for she gave me a look as much as to say : " If, now, my dear boy, you were to get up, to take your leave, and to depart, it would be well." But a curious circumstance had overtaken me. While she had been speaking of her bereavement, I had recalled to myself, not only the fact that I was in love, but the probability that the mother knew of it : whereupon such a fit of bashfulness had come upon me that I felt powerless to put any member of my body to its legitimate use. I knew that if I were to rise and walk I should have to think where to plant each foot, what to do with my head, what with my hands, and so on. In a word, I foresaw that I should be very much as I had been on the night when I partook too freely of champagne, and therefore, since I felt uncertain of being able to manage myself if I did rise, I ended by feeling unable to rise. Meanwhile, I should say, Sonetchka had returned to the room with her work, and seated herself in a far corner—a corner whence, as I was nevertheless sensible, she could observe me. Madame must have felt some surprise as she gazed at my crimson face and noted my complete immobility, but I decided that it was better to continue sitting in that absurd position than to risk something unpleasant by getting up and walking. Thus I sat on and on, in the hope that some unforeseen chance would deliver me from my predicament." (" Childhood, Boyhood, and Youth." L. Tolstoy, pp. 69, 70, 214-217.)



EXERCISES

1. Consider the pros and cons of the cinema as a place of entertainment for the adolescent boy or girl.

2. Do you consider a young people's section desirable in a public library? Give your reasons.

3. How would you deal with *one* of the following, if you were in charge of the club or school where the delinquency occurred: "truancy," "lying," "thieving."

4. What recognition of the special dangers and difficulties of adolescence do you find in (*a*) the social organizations, (*b*) the religious organizations, of the community to which you belong?

5. Discuss the Boy Scout or Girl Guide movement from the point of view of adolescent psychology.

6. Of what characteristics of adolescence do you consider the following practices indicative: bullying, giggling, hero-worship, novelette reading.

CHAPTER XII

THOUGHT

WE prescribed for ourselves a " genetic " treatment of psychological topics. But the serial discussion of topics must not lead us into the error of thinking that any particular form of mental process only begins to develop after the complete development of the processes which have preceded it in order of treatment. It is true that thought processes are a higher form of development than the processes of memory or of imagination, and that in the order of development they are later ; but it is not true that memory and imagination reach maturity in the individual before thinking begins. It is difficult to say when thought begins in the human individual, and even more difficult to determine where it begins in the line of evolution. Do animals think ? The answer will depend upon what we mean by " think " and how general is the term " animals."

THINKING AS SOLVING A PROBLEM

We may perhaps gain the clearest idea of thought if we begin by considering an instance wherein thinking is neither rudimentary on the one hand nor highly complex on the other. " Where can I put the key of my bureau so that my friend who is coming to live in my room will be sure to find it and where at the same time my charwoman, who is to clean the room in readiness for her, will not find it ? " I have to think. I review this place and that, and reject now one, now another. On the mantelpiece ? Too obvious. In the pen tray ? Again, too obvious. Inside the one emptied drawer ? Not secure against the assaults of the curious. In an envelope addressed and fastened down ? Not a bad idea, but still not quite satisfactory. My charwoman might be more tempted by such an exhibition of caution. Stay, I

have it, inside the new novel I promised to leave for her entertainment. If that particular novel is set in the book-case among the others, the key will be safe until the book is taken down, as assuredly it will be by my friend on the very evening of her arrival. With this my thinking is done. The thinking has been the solving of a problem, and, speaking loosely, we may say thinking always is solving a problem. As in this example there are certain definite requirements which must be met. I need a place likely to be accessible to my friend and likely to be inaccessible to my charwoman. My problem in itself suggests lines of association. Places for putting keys, which are they? We notice that each idea as it is suggested is confronted with the requirements of the problem. Mantelpiece and pen tray conflict at once with the requirement of concealment, though they are compatible enough with the requirement of accessibility to the newly arriving friend. The recent preparation made in the bureau itself probably suggests the idea of the emptied drawer. It is out of sight and not so obvious as the other places, but still does not meet the requirements. From idea of shutting up in the drawer comes the suggestion of enclosure in an envelope. This is nearer the mark. It is brought up against the conditions and finally rejected, but it works suggestively. Enclosure in something likely to attract the notice of the friend and not of my charwoman is what is needed to meet the requirements of the problem. The problem is thereby narrowed down. What my friend will look for is the promised novel, and there I have it. My books do not appeal to my charwoman, they will not be taken out and sampled, the key will be safe there.

Now this process of thinking differs from a train of ideas in one obvious respect. In a train of ideas the individual passes on from idea to idea in a progressive line. He may sometimes track back, sometimes make a fresh start, come back from a by-way or leave the high road for a by-way; but he is none the less in progress, following along a single line. In thinking there is not a single line of progression, but a duality, a constant bringing up of suggested ideas alongside the requirements of the problem. Often it is just this

survey of problem and idea side by side which determines the new step forward, as, for example, in the case of the idea of enclosure in an envelope. This taking of ideas side by side and finding fits or misfits is **comparison**, and comparison is essential to thought.

We may get a further insight into the character of thinking or the thought processes if we consider wherein thinking out a problem differs from the process of learning that we termed learning by trial and error (cf. Chapter VIII). Let us take a practical problem, such a simple task as repacking a child's building bricks in a box. Rendered confident by the knowledge that they came out of the box, I may proceed " blindly," trying them now one way, now another. At the first few trials I may be left with some bricks which will not go in the box, but if I go on long enough I shall succeed. I may on a subsequent occasion put the bricks in correctly at the first attempt, if I have *learnt* by my experiences. I know that they will repack in this particular way and that they did not go in when I tried other ways. Now, although I had a problem and I may seem to have solved it, I have not thought it out. I do not know what the requirements of the problem, " Repack the bricks in the box," really are. I do not know *why* this way and that way failed, nor *why* this last way succeeds. If I had thought out this problem I should have seen what the repacking required. There are the bricks and there is the box. The length, breadth, depth, of the latter condition the arrangement of the former. I might still make trials, but they would be enlightened, not blind, trials. In every attempt the arrangement of this or that brick would be made with the size and shape of the box in view. There would be growing realization of what has to be done. The failure of any one attempt would help to condition the final success by making clearer the nature of the requirements. We have here, as in the problem of the key, comparison, and we have also that progressive realization of solution. In proportion as we solve our problem we see more clearly what it is we have to solve. As Professor James has put it concisely, if P is our solution, " P overshadows the process from the start " (" Textbook of Psychology," p. 358). But

P only becomes clear, because by our trials we are analysing or breaking up the problem and thereby discovering its essential features. We see, for example, why it is we cannot begin by putting in the triangular piece: it blocks up the place required for the long rectangle, and so on. In the instance of the key, we gradually come to see the essence of the problem as the enclosure of the key in something not attractive to the charwoman but attractive to my friend.

The comparison of thought, then, entails analysis whereby there is "enlightened" selection of the salient and relevant features both in the problem and in the projected solutions, and consequential rejection of the irrelevant.

THINKING, REMEMBERING, IMAGINING

Let us contrast thinking with remembering. Unfortunately we often use the word "thinking" for remembering. To use the same line of illustration as before, let us suppose that the friend never came to occupy the room and that after six weeks I return and re-occupy my quarters. I want to go to my bureau and the question arises, "Where did I put the key?" I have forgotten the place selected. I may say again, "I must think," but I mean "I must *recollect.*" The problem, in so far as there is one, is to capture the line of suggestion which will bring back my old ideas. I may remember thinking the key must be put in a place where my charwoman would not come across it. Bit by bit I may recall how the problem shaped itself, remember rejecting the drawer and the envelope, remember that I had a bright idea. What was it? My eyes may range over the room in search of a suggestive link. One may be tempted to say, "Surely, just at this point of recollecting a true problem is arising: the requirement is a bright idea likely to have occurred in this setting." But so far as the process is one of remembering, I shall cast back for clues to my behaviour on that occasion; e.g. I shall try to recall the circumstances which led up to the preparations for my friend's occupation of my room, what was to happen when she arrived. In going over these incidents, the promise of leaving a certain novel will be

recalled, and thereupon will come to mind the forgotten hiding-place of the key.

I have purposely chosen a case of recall where the forgotten item can be set forth as a problem. But the road to the solution does not lie through analysing the problem situation by comparing it with this and that suggested idea. The solution lies in pursuing any suggested train of ideas until it is drawn blank, and then setting off on a new one. In what sense is any given train of ideas drawn blank and why is it rejected? *It fails and is rejected because it arouses no memory*, not because it is confronted with the problem and is thus seen to be no solution. So, on the other hand, the right idea is not recognized as solving the problem in the sense of meeting given requirements, but it is remembered, and is the right idea in virtue of this fact. It comes with its hall-mark of past experience, "I did that."

It is only in these cases of difficult recall, where there is a systematic arousal of one track of association after another, that there is any resemblance between recollecting and thinking. To render the nature of thought processes more definite we may contrast them with those of constructive imagination. Often, indeed, the two processes may approach each other so nearly that it is difficult to determine which is the appropriate denomination for a given process. We may, however, confine ourselves to cases where each process shows its distinctive features. Both are processes of analysis and re-synthesis, bringing together ideas or sense perceptions which are not given together in the course of experience.

In cases of "passive" imagination the lines of analysis and re-synthesis are laid down for the individual exercising constructive imagination. For example, the reader of a book in following the description of a given scene, or in taking in the nature of a situation as it appeared to the hero or heroine, has to construct from his own ideas the required scene or situation; and, further, to construct it in accordance with the indications given. Though he has never been out of the south of England, a vision of an "ice field" would arise in an imaginative reader when he reads a description of one in a book on polar exploration. Such suggested constructions,

synthesizing though they do various separate experiences, are easily distinguishable from thought products. There is no process of comparing, no rejection or acceptance of this or that as failing to fulfil, or as fulfilling, given requirements.

In active constructive imagination there is a task, or shall we say a rôle, to be fulfilled by the construction. There is something corresponding to the problem of the thinker. The inventor, the artist, the poet, construct, if you will, at the bidding of their practical or emotional needs ; but these needs have to find satisfaction. The construction which satisfies them stands in the same relation to the task as the solution of thought stands tc the problem. The medium in terms of which the construction has to be made may be prescribed—for the artist it must be the medium of his art—but the construction itself is a creation.

We may consider also the imagination of the scientist or the inventor who uses his imagination construction in the service of thought. A biologist who has puzzled over the characteristics of two species may "see in imagination" a creature which would represent a common ancestor of x and y. It is a fiction, a creature of his own making, but he pictures it as he would see it, were it a living specimen, in his aquarium or under his microscope. The engineer may have a vision of the bit of mechanism which would perform a certain movement. He may mentally handle it. It comes before him as it would appear or feel were it actually present to his senses. There is a sense in which these products of imagination are the outcome of the questions or problems which the biologist and engineer have set themselves. The construction is a way in which the biologist or engineer is meeting the requirements of his problem. It has arisen in response to an intellectual need. But it is not in itself a solution of the problem. To be that it would need to be brought into relation with the problem. The construction of imagination will arise by what we have described as the single direction of suggestion. If it is to be used in the service of thought, it will be checked up against the terms of the problem. There will be the duality we referred to. By comparison the thinker will analyse the imagination product in relation to the problem, and the

consequent re-synthesis will be a thought product. Here we may stress a point—no image, no potential sense experience can express a thought solution, since this is always *a relation between the two terms of the comparison* : the problem, and the suggested ideas. We may perhaps best illustrate this by taking the instance we have already discussed in detail :—the " Where shall I put the key ? " problem. As I was nearing the solution of this question, I might quite probably have had a construction of imagination. I may have seen the key lying in the novel. Taken in itself this picture would not have been the solution. It must be checked against the requirements. It is only when it is taken in its relations to my problem of placing the key where my friend will find it, and where my charwoman will not see it, that the picture has any significance. The image cannot be expressive of both question and relevant answer. The picture of the book and key cannot say, " This novel is a thing my friend will certainly look at and which my charwoman will not touch." It may occasion my leap to that conclusion, but it is not itself the expression thereof.

Thought requires for its expression symbols expressive of relations. It can only make use of sensible imagery by interpreting it as meaning more than it expresses. This brings us to the topic of language and its functions in mental life.

LANGUAGE : ITS ORIGIN AND ITS FUNCTIONS

Language is both a means of communication and an instrument of thought, functions which, though different, are not independent.

There are several theories as to the origin of language in the form of articulate speech. It may well be that no one theory contains the whole truth, but that each is true so far as it goes. The short, descriptive epithets applied to the theories serve to convey the gist of each.

The *Bow-wow* theory maintains that language began in man's imitation of the sounds he heard around him : the cries of animals, the whistling wind, etc. The first words would thus be nouns and verbs.

The *Pooh-pooh* theory contends that man uttered articulate cries in the expression of his emotions: "Oh," "Ah," "Ugh." The first words would be interjections.

The *Ding-dong* theory argues that events in his environment would wring sounds out of man, evoke speech, just as the blow of a clapper rings a sound from a bell. A later theory (*cf.* Jespersen: "Language") regards articulate speech as a development from crooning song which is expressive of emotion: the battle-song after warfare, the love song of courtship.

Study of children would seem to justify each theory. Given the organs of speech, the child seems to produce the crooning sounds which would substantiate the claim that song precedes articulation. His responsiveness to his environment may seem to bear out the ding-dong theory. His imitation of the sounds made for him by his social environment and his guggles of pleasure and squeals of anger or fear would furnish testimony for the first two theories.

Sounds quickly become signs. They are means by which he can express his wants to others. Being signs they are means of communication. Gestures and postures serve the same purpose and are used by us all our life as language signs —a means of communicating our wishes, our knowledge, to one another. A nod, a wink, a wave of the arm express to the beholder ideas, feeling, and wishes in the mind of the author. As means of expression such signs are often ambiguous and clumsy. We have only to be in a foreign land and dependent on mimetic gesture and behaviour to realize how difficult it is to express our meaning. The spoken sign is less ambiguous. The spoken sign or word of ordinary speech is a conventional or arbitrary sign. Few words are like the meaning they signify. In baby language we use "puff-puff," "chick-chick," "gee-gee," "moo-moo," wherein there is some real or fanciful resemblance between the sound of the sign and a sound characteristic of the thing signified. Some of our verbs mimic the sound of the action they express, e.g. "rip," "frizzle," "splash." But such "natural" signs are the exception. The association between word and meaning is acquired and fixed by repetition. The child learns to use the signs used by the grown-ups round about him, and

learns for the most part by unintentional imitation. The name of an object is learnt as if it were a further characteristic of the thing in question. It is moreover a characteristic that remains constant when other qualities change. Colour may vary, size and shape may alter, but still the object of sense perception may be called by the same name.

For memory and for imagination an image of the name as spoken, as heard, or as seen in print or script, may take the place of the image representing the sensible qualities of the object. The name will serve to grip attention and will stand for the object it denotes. It is a symbol for mind to express the sensible object.

But language does not consist of isolated names. It sets forth the relations of objects to one another. Spatial relations, temporal relations, the operation of one object as agent and the result in another object as patient. It expresses the relation of one quality of an object to another; its likeness to, or difference from, another. It expresses the manner in which objects are characterized, both qualitatively and quantitatively. But all these relations expressed by language are relations which thought has recognized. The unit of thought is a synthesis. The unit of language is the sentence, and every sentence is a synthesis of a subject and predicate. The first steps learnt in the grammatical analysis of a sentence, viz. the division into the subject and what is predicated about that subject, is a recognition of the fundamental logical relation of judgment. Every thought and every sentence is in essence the relation of a predicate to a subject. Logic recognizes two ultimate forms of asserting relations—the affirmative and the negative: S is P, or S is not P.

What Logic puts into formal dress represents the outcome of thinking as a psychological process. S is P, or S is not P, expresses the solution reached by comparison. The grammatical relations of the parts of speech, case endings, the changes of verb for tense and mood, all serve to express the work of thought analysis as no modification of sensory imagery ever could. Without the symbols to express them we may well believe that the relations now expressed would never have been recognized by thought analysis.

"Language is to the mind precisely what the arch is to the tunnel. The power of thinking and the power of excavation are not dependent on the word in one case or the mason work in the other; but without these subsidiaries neither process could be carried on beyond its rudimentary commencement" (Sir William Hamilton: Lectures on "Metaphysics and Logic," pp. 138, 139). Comparative Psychology shows how limited is the command of general and abstract ideas when symbols to express them are lacking.

In learning to understand speech the child is entering into the heritage of the thought work of its race. The class names "dog," "tree," help him to acquire without effort a knowledge of an underlying sameness in "this" dog, "that" dog, "this" tree, "that" tree. As he uses the name there develops with the name an idea which we may term the class idea of "dog" or "tree." To gain some insight into the thinking processes which are thus abridged for the child, let us consider the work that goes to the making of a general idea, e.g. the idea expressed by the word "factor." To gain this the schoolboy or girl is presented with instances or examples of numbers. By comparison of these instances with one another he or she is enabled to see the sameness of relation which one number bears to another in the various instances. There is analysis whereby the essential features of the relation stand clear from the varying unessential features of the instances. This "factor" relationship of x to y—no matter whether x be 3 and y 6, or x be 2 and y 4—emerges as the various instances are compared together, and thereby analysed. The word "factor" henceforth stands for a definite general idea built up by the individual boy or girl as a thought product. He has had the problem of discovering the underlying sameness of the particular instances, and he has solved it. The comparing judgments whereby "this" was brought up against "that" are now all crystallized by the thought-formed general idea, and are expressed by the verbal symbol "factor." This process of building general ideas by thought is the process which logicians call conception, and the general idea thus formed is the **concept.** Abstract ideas of qualities and relations, such as "colour,"

"heat," "equal to," "superior to," are formed in the same manner. The scholar and the scientist in their researches may reach a new conception for which there is yet no verbal symbol, and for which one must be found if the new standpoint reached is to be maintained. We may take in illustration an instance from modern psychological study. The term "dissociation" expresses for the psychologist a certain state or condition of mental life. For if the psychologist interested in hysteria or in hypnotism reflects on the symptoms and compares these with other normal and abnormal conditions, he finds certain features manifested when an individual is suffering from hysteria, when he is hypnotized, when he suffers from fugues or from alternating personalities, and when in normal life he possesses certain watertight compartments of ideas or displays wholly incompatible modes of behaviour. Different as these conditions are from one another, when taken in their entirety, they nevertheless, when compared with one another, exhibit a common characteristic. In each case the mental processes of the individual are cut off from the other mental processes of normal life. They may present features which are quite contrary to those of normal consciousness. They are not remembered and connected up with the other experiences of normal life. It is this condition of separation and independence which the word "dissociation" is able to express for the psychologist. It is such a commonplace term to-day that we hardly realize that it expresses a conception which had no place in general psychology twenty years ago, or that it has brought together for us phenomena which otherwise might seem to have no bearing on one another.

As an illustration of a different type we may take the slang word "high brow." The word is of this generation and denotes a type of person to be found in the army, in the professions, in business, in art. The term hits out the class graphically in virtue of the common feature—superior learnedness.

We have said that the child in gaining command of language enters on a thought heritage and has much of the work of thought abridged by learning words and their uses through

imitation. In learning language interjections and names of objects come first for the child; next, verbs; later, prepositions, adjectives, and adverbs. Up to the end of the first year the single word functions as a sentence; gesture and accent give it different meanings; e.g. "cup" may indicate simple recognition, the triumphal use of a newly mastered name: "There is a cup." It may be accompanied by a reaching movement: "I want the cup." In the second year words are strung together. "Baby cup," meaning "Baby has a cup," "Baby wants a cup," etc.; "Baby walks," meaning "Baby can walk," etc. Very soon, plurals, tenses, and cases will be used. The child is mastering his tool. During the third year not merely words as sentences, but these sentences themselves are strung together, expressive of the relation of one thought to another. Very characteristic of this period is the practice of following an assertion by a denial, making the synthesis recognized in thought more obvious: "Baby's chair, not Nannie's chair"; "Good girl, not naughty girl." By the fourth year we can recognize from the child's speech that he is thinking or reasoning both in the way of finding applications and in the way of finding reasons.

All thinking is solving a problem; but we may perhaps usefully distinguish these two types of problem: finding a "therefore," a consequence, and finding a "why." Put briefly, it is the difference of (*a*) starting with "Because this is thus and that is thus," and reaching "Therefore so and so is so and so"; and (*b*) starting with "So and so is so and so," and reaching "Because this is thus and that is thus." The human being is always working out from what he knows, applying his knowledge and reaching consequential "therefores," or he is asking why his facts are thus and thus. The nursery moralist applying the dicta of nurse and mother to conduct works out "therefore." "Mother said we weren't to wet our feet; you are a naughty little boy."; "Mother says the medicine will take away the pain, and I must swallow it." This example from Miss Drummond's "Dawn of Mind" is an instance of "therefore" finding by her niece Margaret at an early age (forty-seven months). "Two little girls, Isobel and Helen, were to come to tea. I said they

would perhaps not come as it was wet. M. 'Oh, but Isobel has an underbrella, under—um—what is it?' Later I said, 'Perhaps Helen has an umbrella too.' M. 'No, she hasn't. Anyway, she didn't bring it last time, and it was raining" ("Dawn of Mind," p. 137). The child is no less active in searching for "because." The rain of questions beginning with "But why?" testify to the efforts to put two and two together and reach an explanation of what is already accepted as a fact. "Why does the snow melt?" To be told that it melts because the sun makes the air warm, or because it is like sugar which melts when you put it in your hot bread and milk, satisfies the questioner. In the latter answer there is no true solution, but there is satisfaction in as much as the unfamiliar new fact is linked up with a familiar one. "Why?" in relation to people's action is a common occasion for children's thinking: "Why does the gardener do this?"; "Why does the guard blow a whistle?" Finding "therefore" and finding "because" in answer to "why?" must not be identified with the two logical types of inference "deduction" and "induction." Finding "therefore" more generally falls into the deductive type, and finding "why" into the inductive type; but the logical significance of the terms deductive and inductive turns on the manner in which the conclusion of an inference is related to its premises as ground for its validity. What we are interested in psychologically is the line of progress actually taken by a thinker, regardless of whether it is logically valid in this way or in that, regardless indeed of whether it is valid at all.

THOUGHT IN THE SOLUTION OF PRACTICAL PROBLEMS BY PERFORMANCE

We have dwelt on the function of language as the instrument enabling thought analysis and re-synthesis to take place, the indispensable tool for reflection, but we must not overlook the analysis and re-syntheses carried out by performance in the world of things. The practical problem of "how?" requires thought for its solution. The solution reached may, however, be expressed in action of arms and legs, and such a

thinking out of a situation can dispense with the formal instrument of language. In the behaviour of children and the higher animals we have illustrations of such thought performances. In his everyday world the child is confronted with situations that demand reflection on ways and means. There are objects which he wants but cannot reach, complicated fastenings of doors, clothes, boxes, which task his ingenuity. In finding a way out of these difficulties—seeing "how?"—the child may exercise thought just as truly as when he is finding "why?" or "therefore." He is seeing a relation between this and this, and his action expresses the outcome of his thinking. He has brought together the problem and its solution. There may be what looks like trial and error in his performance, but it is not blind trial. Each effort serves to bring out the essential features of the problem and to shape the correct performance. We may refer to our previous example of repacking bricks in a box, and to the instances given in Chapter VIII. Yerkes, in an account of problems set to an orang-utan, Julius ("Mental Life of Monkeys and Apes," p. 92), gives us an interesting comparison between his behaviour and that of a child of three years. The problem to be solved was how to obtain a banana hung too high to be reached by an uplifted hand. A couple of boxes lay near by. The use of boxes to make him taller seems to have been readily suggested to the child by the problem; he does not have any difficulty in recognizing that he can put one on the top of the other. He fails to obtain the banana, because he does not put them sufficiently near the place where the banana is hanging. When he mounts up on the boxes he still cannot reach the fruit. This failure does not lead to the correct adjustment; the child does not gain insight into the requirements of the problem as one might expect. One may say he ceases to think and begins to play about with the boxes. Although Julius has already used a box to obtain the fruit, he does not readily have this means of solution suggested to him by the situation. The problem is not so suggestive to him as to the child, but the need for solution is more urgent. He wants the banana badly; the child does not want it for himself but as something to give

Julius. Julius, therefore, keeps at his problem persistently. He gauges distance better than the child; he can climb better, though he cannot so comfortably stand erect on the box. To put one box on the top of the other presents a difficulty to Julius which does not exist for the child. It is in itself a further problem. He has to grasp in thought, and carry out in action, a relation between the boxes as well as to grasp their relation to the problem. We may put it formally as the difficulty of bringing together objects which are spatially disconnected and then of treating them as one in relation to his goal, the banana. Professor Köhler records that his chimpanzees found the same difficulty in box stacking. (" The Mentality of Apes," Chapter V).

Although in practical performance we may express the analysis and synthesis of thought through actions, yet in a human being, who possesses language as an instrument for controlling ideas, these performances are usually accompanied by words, and often show the guiding influence of verbal expression. A man given some mechanical puzzle will argue the thing out in words, even if he is accompanying word by deed: " I will put this here, and then I can lift that so," etc. This stage of practical reasoning may precede the stage represented by, " If I were to put that there, I could lift that so," etc., the stage wherein there is no practical performance.

We must always remember that thinking is purposive. Thought would most naturally begin in the service of immediate action, wants, and needs which could not be satisfied by impulsive behaviour or trial and error methods. For us, as adults, thought is purposive reflection on experience. It may be no longer tied to the needs of immediate action. In contrast to practical thinking we may term it theoretical, but it is purposive none the less. It organizes and consolidates the knowledge we already possess, weaving new relations between the strands of disconnected items, and putting us in a position to comprehend further acquisitions of perceptual experience. It is the master-builder for the structure of mind.

EXERCISES

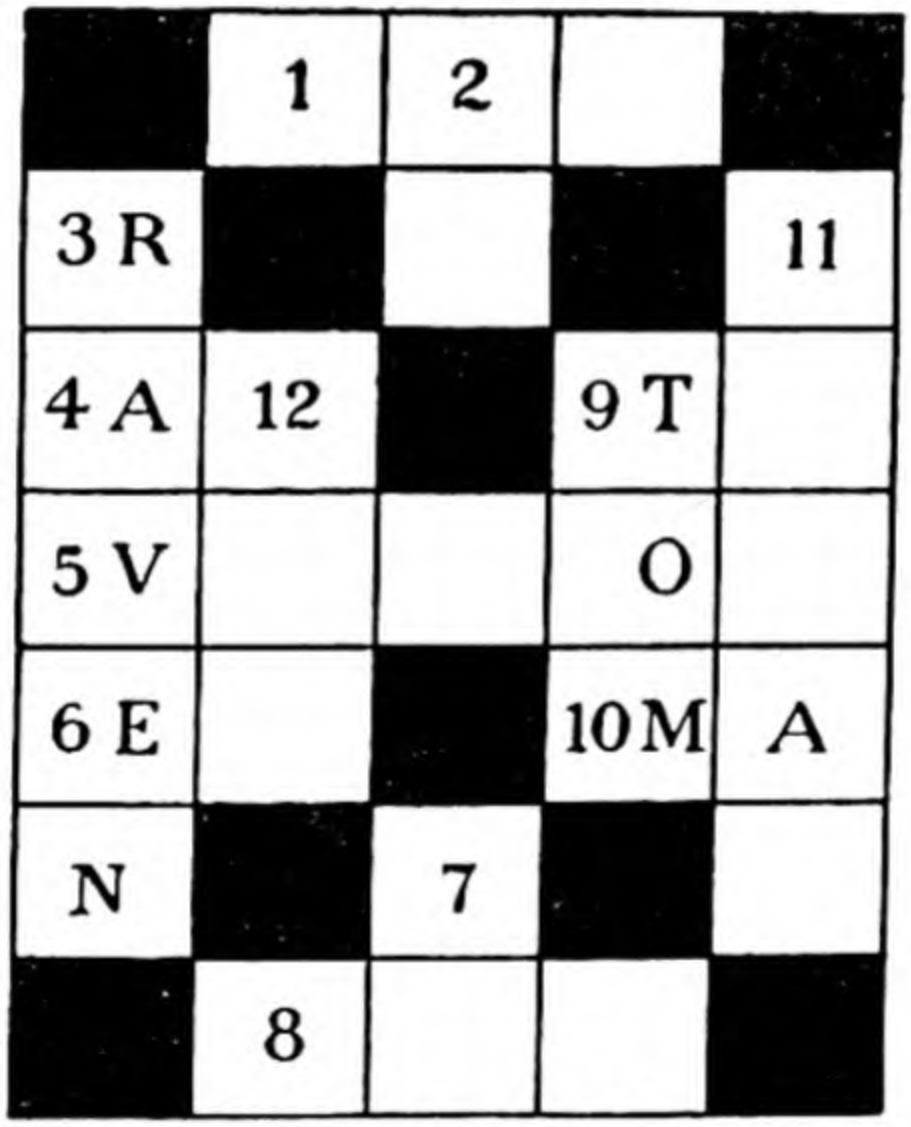
1. Trace the thought processes involved in working at the accompanying Cross Word Puzzle. You are to assume that the thinker has tentatively filled in the words written in the squares and is attacking 5 horizontal.

Horizontals.

1. A rodent.
4. An exclamation.
5. May be bought.
6. A unit of measurement.
8. Descriptive of weather.
9. Consequently.
10. A child's invocation.

Verticals.

2. A preposition.
3. A bird mentioned in the Old Testament.
7. A denial.
9. A man's name.
11. Relating to the sun.
12. A border.



2. (*a*) In each of the following, underline the word that is correct, as in the example—

Uncle is to nephew as aunt is to
brother, sister, niece, cousin.

(1) Correction is to fault as medicine is to doctor, patient, disease, chemist.

(2) Seldom is to never as little is to small, none, large, often.

Try by retrospection to write down what occurred in your mental life as you carried out the above tasks.

(*b*) From the expressions opposite each word in capitals, select and mark with a cross the one which most exactly defines it.

Example :

TABLE—Something to put plates on. Has four legs.
X—An article of furniture on legs with a smooth top.

MOUTH—A part of the body. The organ of speech.
The opening through which an animal takes food.

PANACEA—A drug to deaden pain. A patent medicine.
A remedy for all diseases.

As before, try retrospectively to describe your mental processes in carrying out these tasks.

Repeat with this material :

(*a*) Object is to shadow as sound is to music, noise, echo, whisper.
Past is to present as yesterday is to then, to-morrow, future, to-day.

(*b*) PARISH—Part of a town. A country district. A village.
An ecclesiastical division of a district.

VENIAL—Pardonable. To be obtained for money.
On hire. Poisonous.

(*c*) If a train is a London train it is *either* both express and passenger *or* neither ; further, if a train is passenger it is a London train. What can you infer about non-express trains ?

3. Read the following extracts dealing with tests for practical ability and point out where the boys and girls who attempted the task had need to exercise (*a*) memory, (*b*) imagination, (*c*) thought.

"CONSTRUCTION OF A WHEELBARROW."

(The completed model is about 18 inches long and stands 11 inches high. It is therefore large enough to be handled without fine manipulation, strong enough to stand hard usage, and not too heavy for small children. It is made up of eight pieces. The pieces are fixed together by tongues which fit into slots and are held by wooden pegs. This avoids the use of any kind of tool, and as a method of fastening is as novel to boys as to girls. Before beginning the construction the child examines the pieces.

If he does not recognize what they make he is helped by questions.)

" Very great individual differences in performance are found in these tests. By the nature of the test, the end or purpose is fixed, and to a certain extent the order of movements is also determined, although there is considerable freedom here. The most interesting and enlightening moments in the performance occur when the subject makes a mistake. His behaviour from the moment he realizes that he cannot get on, until he grasps where the error lies, and his method of dealing with it are valuable character indications.

" The commonest error in constructing the wheelbarrow is to put the side pieces into the bottom before fixing the back. There are several typical modes of behaviour where this occurs :

(*a*) As soon as the subject sees the piece for the back he realizes his mistakes and proceeds to unfasten and remove the sides.

(*b*) When the subject sees the back, he has a vague idea from the projecting tongues that perhaps it ought to fit between the sides, but as these are fixed he does not see how this can be done. He probably then lays the piece down and tries the front piece instead. When this does not succeed he tends to postpone this problem and attend to another part altogether. Later, when faced with the problem again, he may realize that there is nothing for it but undo what he has done and begin again.

(*c*) " Having fixed the sides, more by luck than by design, the subject attempts to push the back into its place, but as it does not go he replaces it with the front piece or tries the back piece where the front should go. These two moves are often repeated over and over again. The main difference between this class of performance and (*b*) is that the children in the latter do usually realize, perhaps somewhat vaguely, where the piece belongs but are unwilling to undo what they have done, whereas the children in the former are working much more blindly and really have no conviction about the correct place. (McFarlane. " A Study of Practical Ability," pp. 21, 22, 23.)

4. In the absence of the doctor a nurse is left in complete charge of a patient suffering from a malady which the nurse has met with frequently in the course of her training. Consider how far the nurse is likely to guide her method of treatment by memory and how far she will have to think out what is advisable in the present instance.

5. What ideas are gripped together for you by the word " wangle " ?

CHAPTER XIII

THE FORMATION OF SENTIMENTS

THE INFLUENCE OF FEELING ON THOUGHT AND OF THOUGHT ON FEELING

IN relating one idea to another, thought brings about the organization of cognitions into coherent systems. We must turn now to the consideration of the corresponding organization in emotional and conational life, or, to put the matter in another way, having considered the organization of meanings we must consider the organization of values.

The affective side of perceptual life colours not only the perceptual experiences themselves, but also the ideas of memory and imagination for which these experiences are the basis. We have to recognize that the ideas which come to us by way of memory or by way of constructive imagination have their affective side, and that value as well as meaning helps to determine the part these ideas play in our lives.

We think of every idea, whether it be one of memory or one of imagination, as having two aspects: meaning and value. As we have said, these aspects are not independent of each other; but in the analytic comparison of thought we are concerned with "meaning" to the neglect of "value." We see such-and-such an idea as having its place in a train of ideas or as related to this or that idea in virtue of its meaning, yet the value of the original perceptual experience has very often set its mark on the idea, and indirectly influenced its meaning. There are ideas which in virtue of their meaning might be suggested directly or indirectly by this or that occurrence, yet they fail to be thus suggested; the actual course of ideas runs on a different line. In Chapter IX we mentioned emotional colouring as important both in determining the line of association actually followed in a train and also in bringing about failure of association. There are

ideas which when they occur either in memory or in the course of constructive imagination or in thought are passed over lightly. Their value rather than their meaning is responsible for this neglect. Such ideas are not likely to be fruitful or suggestive of other associations. They have an aura, shall we say, based on the affective nature of the original perceptual experiences, and such an aura may determine their weight in an intellectual system. There are items of knowledge acquired under pleasant conditions—learnt in childhood in a sunny room from a charming teacher—which carry, as it were, a sunshine value with them throughout life, even though the incident of learning be forgotten. There are other items which are repellent, in virtue of some incident belonging to their acquirement. They may be used as items of knowledge, but are not likely to be fruitful germinal points for new lines of suggestion.

It is of first-rate importance for the full development of thought and reflective self-consciousness that these should have the support of a rich network of ideas with readily accessible lines of direct and indirect association. During adolescence, in particular, there is a danger that the individual may seek to analyse and re-synthesize only those experiences which seem to promise easy reconciliation or to lead to some pleasing solution. Ideas with any displeasing aura may be slurred over. They are not brought into relation with the problems, or, if suggested thereby, are insufficiently analysed.

Passages in personal experience which conflict with the standards recognized by the society in which he lives, or with the standards which the individual himself has come to adopt, are not reviewed in memory. They are not brought into relation with present thoughts. In this neglect there is danger both for thought and for conduct. If these passages were reviewed, and were reflected on, their stupidity or their immoral character would be seen clearly. They would then awaken shame and regret; they would take their place in relation to the standards of reflective self-consciousness. But if they are not reviewed, or if when they are suggested by trains of association, they are passed over, these ideas will remain outside the influence of the systems constructed by

thought. They will become "dissociated," in the sense in which we used the term in Chapter IX (See also Chapters XIV and XV).

So far we have been considering the influence of affective experiences on the organizing processes of thought; we want now to consider the influence of the organizing processes of thought on feeling. The impulses and emotions of childhood are spasmodic and disconnected. This situation arouses fear and the behaviour characteristic thereof; that situation arouses anger, with its characteristic behaviour. The same object in different situations may occasion different emotions. The kitten when it spits may evoke fear in the child; when it dashes at his favourite toy, anger; when it spins round after its own tail, it calls forth his cries of delight. The object, being common, serves to link the emotions. As the personal world becomes more interesting and social relations, whether of masterfulness or of sociality or of subjection, arise, behaviour becomes increasingly a response to social environment. As a necessary consequence emotions are concerned more and more with persons. One and the same person comes again and again into the individual's social life and becomes the centre for many different emotions. These emotions do not remain any longer spasmodic. In proportion as the social situations into which the same individual enters are connected the emotions appropriate thereto become systematized; e.g. if a certain action of the stranger X has occasioned fear to Y, the departure of X will occasion joy. Such connexions may be recognized by thought. When one realizes the bearing upon one another of the situations into which X enters, and of the responses that Y makes in these situations, one is recognizing the schema which served to organize the emotions. Such an organization of emotions is termed a **Sentiment.**[1] This term is one which psychology owes to Mr. Alexander Shand, to whom also psychology owes the detailed study of the influence of emotions on conduct and character ("The Foundations of Character"). As an organization, Sentiment belongs to the structure of mind, whereas an emotion is an event in mental life.

[1] When the centre or core of the organization is unrecognizable, being in some dissociated idea or ideas, it is preferable to use the term Complex.

LOVE AND HATRED

Impulsive and intentional behaviour both show purpose, both involve an end, though in the former the end is not present as an idea or motive. If, then, behaviour with reference to a particular person becomes systematized, the whole drift of such behaviour or conduct will have the person as an end. We may say that it will either promote his well-being or hinder it. It will encourage relations between him and the subject or hinder such relations. This difference in the drift of behaviour has its counterpart in a difference in sentiment. There are two different types of sentiments: Love and Hatred. Under those titles we include all degrees of "liking" and "disliking." An emotion will belong to a love sentiment or to a hate sentiment according to the inward significance of the situation. The significance in question is the bearing of one situation on another in relation to the well-being or otherwise of the person calling forth the emotion.

The great illustration of a love sentiment is the love of a mother for her child. We may consider the love of a happy mother for her first baby. It would hardly be an exaggeration to say that two-thirds of her behaviour, impulsive and intentional alike, are concerned with the baby, and that her various actions, though they fulfil particular purposes, all bear on the same main purpose—promotion of his well-being. If the baby is ill, she is beside herself with fear. If he looks bonny, she is full of joy. If someone calls him handsome, big for his age, quick, again she is delighted. If anyone neglects him, forgets any accessory of his comfort, or if anyone criticizes his appearance, she is angry. Very characteristic of her sentiment will be the group of emotions which we, following Mr. Shand, termed "tender" (See Chapter X). She will caress her baby, fondle him, or, as we say in everyday speech, "love" him. But if we keep the term love for the sentiment we shall realize that the mother is loving her baby when she is afraid, or when she is angry. Love is no passing emotion, but the organization within which the various emotions occur.

Take, for contrast, a hate sentiment—say, the hatred of a schoolgirl for a cross governess. The same emotions will occur, but the bearing of the situations which aroused them are very different. The schoolgirl's particular actions have each their purpose, but in so far as they concern the governess they one and all would serve to hinder her well-being. The schoolgirl experiences fear of punishment, fear that the governess may stay longer or return sooner than is expected. She rejoices at any neglect shown to the governess, or at any criticism of her conduct or appearance. She is angry at actions which give the governess more power, or which further any of her plans. It is not the nature of the specific emotions, then, that differentiates love from hate, although certain emotions may be more characteristic of love and others of hate. The difference lies in the organization to which they belong.

Inasmuch as there is an instinctive basis for the promotion of the well-being of a given object there is an instinctive basis for a love sentiment, and such a basis is frequently claimed for the mother-love sentiment. Even if we acknowledge the instinctive basis, we may nevertheless recognize the enlargement of the sentiment which is effected by intelligent insight into the bearing of one situation upon another, and of one line of action upon another. The influence of thought on the organization of sentiments is very great.

As we have said, the first sentiments centre round persons. But inanimate objects also become centres for love and hatred. A child may love his doll or favourite toy when this plays a large part in his emotional life. He may hate a certain room or a particular piece of furniture. To have to be in the one or to have to remain with the other may occasion fear or disgust or anger. The child will rejoice at hearing that the room is to be shut up, that the scene of his daily life is to be changed. He will similarly rejoice to hear that the piece of furniture is broken or sold. Whenever possible he will avoid coming into relation with it. The adult will form sentiments for various places and things. We say he is attached to his old home, his fishing tackle, his clubs, his cricket bat. Or, again, he has become an enthusiastic collector of old china, of stamps, of lace, of prints, etc. In each of these instances

there is a sentiment; it may be weak and of temporary duration, but while it lasts it is the organization into which enter the various emotions that the individual experiences in relation to the object. Mr. Shand gives it as a fundamental law of sentiment that "every sentiment tends to include in its system all those emotions that are of service to its ends, and to exclude all those which are useless or antagonistic" (*op. cit.*, p. 62). In our everyday life we are often surprised at the emotion called forth in someone by a situation. To us as spectators it seems out of all proportion to the occasion. Fear or anger will be exhibited when there is nothing that seems to warrant the display. These emotions are not of the impulsive order, but are emotions in the service of a sentiment. We may marvel why a man turns a household upside down and flies into a rage when he wishes to show his fly fishing-rod to a friend but cannot find it. The anger is inexplicable, unless we take into account the sentiment within which it falls. Nor can we understand his chagrin at missing a sale at Christie's, unless we know of the sentiment which gives the special value to the occasion.

With the development of thought there arise the *abstract* sentiments. The centre in these is some aspect of life or of character recognized by thought. This is the concern of intentional conduct. Its furtherance or hindrance is the aim of action in certain fields of activity. Love of truth, of beauty, of justice, hatred of cruelty, of injustice, of pride, inspires conduct in the same sense in which love of a person or hatred of a person inspires intentional or impulsive behaviour. A man who is seldom the victim of emotional stress may blaze with sudden anger at the sight of cruelty or at the knowledge of injustice. His emotions are excited in the service of his abstract sentiments. We may lay it down as a general principle that in proportion as life becomes organized by thought reflection the emotions will be aroused in the service of sentiments. They will tend less and less to arise as spontaneous events due to the value of sense-given situations. This is a fact which is of great importance for the stability of thought and for the stability of conduct. We spoke of habit as responsible for fixity of action, and called attention

to the advice given by Rousseau (See Chapter VIII). The formation of sentiments performs on a higher level of development the service that habit performs on a lower. Sentiments may so fix lines of conduct that variation for better or for worse may become well-nigh impossible; similarly, sentiments may so harden lines of thinking that flexibility of thought is lost. The origin of any particular sentiment is a fascinating problem for the psychologist who can ascertain the relevant facts. How does this or that object come to be the ground for much of our emotion and our conduct?

Generalizing, we may say that objects which give us joy, or in connexion with which we experience pleasure again and again, become centres for action. We seek to promote the well-being of such objects in relation to the self. We have already pointed out that there may be an instinctive basis for such behaviour and therefore for the formation of certain love sentiments, notably the love of a parent for its offspring and the love of an animal for its mate. On the other hand, objects which are the constant occasion of pain or of fear are objects which we avoid and from which we seek to protect the self. We seek their ill-being rather than their well-being. There may be here also an instinctive basis for the sentiments of hate. The natural enemies of the species are objects calculated to arouse the constant hostility of the species. We may look, then, to the occasions of joy and pleasure on the one hand and to the occasions of fear and pain on the other as episodes likely to be fruitful in the formation of sentiments of love and hate.

The most important of all the sentiments and the most potent in its influence over other sentiments is the sentiment of self-love. Promotion of his own well-being is a constant ground of the child's actions. As we have stated in Chapter XI, the bodily-self is the first form of self, and the child's activities are directed to securing the goods of this life for the bodily-self: food, warmth, clothing, and the pleasures belonging thereto. Emotional situations arise in connexion with his bodily well-being. He is angry when someone obtains a nice bit of food which he wants; he is afraid of pain or of injury to his body. It becomes the centre of an emotional

system. To this bodily-self there is soon added, as we have seen, the social-self. The well-being of this social-self is a matter of great concern to the individual. He wants to stand well with his fellows, to have the pleasure of admiration, flattery; vanity figures as a prominent emotion for the social-self. The emotional attitudes discussed in Chapter X are very important for the growth of self-love. The attitude of mastery will favour the rapid growth of the sentiment, while that of subjection will retard its development, or, which is more disastrous, it will pervert the aim of the social-self. When this occurs, the self that is loved is seen as a martyred self, despised by all the world. The individual will seek to promote the well-being of this unappreciated self, and at the same time find pleasure in the situations which bear out this conception of self. There is here a double self for the sentiment: a secretly beloved self, for whom success in the social world is coveted, and a self as reflected from the attitude of others—a poor, despised, neglected, and wronged self for whom failure is the allotted portion. The emotions appropriate to the two sentiments, love of the secretly esteemed self and love of the martyred self, may conflict. As a martyr I ought to be and actually am, pleased at this slight put upon me; it is just what fits my theory of unappreciated merit; but at the same time loving myself as a person of merit, the slight makes me boil with anger. The third attitude, that of give-and-take is the one most calculated to favour the formation of a self-love which is not swollen, not shrunken, not perverted, but able to co-exist beside love sentiments for others.

As the conception of self as a person develops the sentiment deepens. It has a more extended range over conduct. The self as an agent in the world, the self with its ideals, ambitions, its outlook in affairs, and its standpoint in knowledge, is a very complex whole, whose interests embrace a large part of conduct. Injury to self-love is one of the most frequent occasions for the genesis of a hate sentiment. The greater the self-love, the greater is the pain of injury, and the more potent the occasion for breeding hatred. The injury to the pride of self may be so great as to change love to hatred.

"Heaven has no rage like love to hatred turned,
Nor Hell a fury like a woman scorned."

The self in all its extensions is wounded; no retribution can be too heavy for the one who inflicted the blow. His hurt is now the underlying motive for action where previously his good had been her aim. Jealousy is an emotion wherein such injury to the self is quickly found; it sees neglect or contempt where before there had been attention and honour. How often does such a crisis in sentiment open the door to tragedy. Shakespeare has furnished a picture of this catastrophe in Othello.

Sentiments are formed easily at the time of adolescence. We have pointed out the tendency to hero-worship; it is also the age for romantic attachments both between members of the opposite sex and between members of the same sex. Heightened emotional susceptibility leads to exaggeration of values and hence to "sentimentality." The principles and standards recognized by thought, as experience of the world deepens, supply a corrective to this proclivity.

ILLUSTRATION OF A SENTIMENT

In order to obtain an illustration of a sentiment in the concrete we will trace the outlines of the picture of self-love given us in Meredith's "Egoist." The "Egoist" is a drama of a sentiment. It is a drama seen by what Meredith terms the Comic Spirit: "If you believe that our civilization is founded in common-sense . . . you will, when contemplating men, discern a Spirit overhead. . . . Its common aspect is one of unsolicitous observation. . . . Men's future upon earth does not attract it; their honesty and shapeliness in the present does; and whenever they wax out of proportion . . . whenever it sees them self-deceived or hoodwinked . . . whenever they are at variance with their professions, and violate the unwritten but perceptible laws binding them in consideration one to another; whenever they offend sound reason . . . the spirit overhead will look humanely malign and cast an oblique light on them, followed by volleys of

silvery laughter. That is the Comic Spirit" ("An Essay on Comedy").

The egoism of Sir Willoughby Patterne may well have had a basis in heredity, for the founders of the house of Patterne knew how to look after their own interest by cutting their connexions with poor relations. Sir Willoughby was brought up by his doting mother and his two aunts. "He received the domestic education of a prince. . . . He cultivated himself, he would not be outdone in popular accomplishments. He did work at science, and had a laboratory. His admirable passion to excel, however, was chiefly directed in his youth upon sports." Sir Willoughby thus enters upon manhood surrounded by admirers from whom he has acquired a heightened consciousness of his own importance. He possesses pride of birth, pride of physical prowess, of intellectual attainments. "Willoughby looked older than his years, not for want of freshness, but because he felt that he had to stand eminently and correctly poised." His first engagement is indicative of self-love. Two main reasons bring about his proposal: the lady had "the glory of a racing cutter," she did not court him, she was sought by many; hence Sir Willoughby is incited to snatch the prize from lesser men. Further, Sir Willoughby is piqued by a rumour set afloat that he had nearly been engaged to a young aristocratic widow. *He* marry a widow! He enjoyed being in the society of his neighbour's portionless but pretty daughter, Laetitia Dale, whose worship of her old playmate is a pleasant feature in his world. He is, however, prepared to bestow her hand upon his cousin, Vernon Whitford, since she has not the physical perfection a Patterne looks for in his mate. "His duty to his House was a foremost thought with him, and for such a reason he may have been more anxious to give the slim and not robust Laetitia to Vernon than acceded to his personal inclination." He is a house divided against itself because the thing he loves is many-sided. It is, then, to Laetitia that he turns when his pride receives the staggering blow of learning that Miss Durham has jilted him on the very eve of their marriage, and gone off with one of his old despised rivals. Self-love sets up a characteristic defence to hide the wound.

"There is no Miss Durham to my knowledge." "He had, indeed, you see, been very fortunately, if not considerately, liberated by Miss Durham. He, as a man of honour, could not have taken the initiative, but, etc. . . . Miss Durham was his mother's choice for him against his inclination." Such was the story which his renewed attention to Laetitia set afoot. Then, Laetitia having served her purpose as a salve to his feelings and a screen from mocking pity, Sir Willoughby Patterne left his native land on a tour of the globe, accompanied by his cousin Vernon. He had saved his pride. Laetitia made no capital out of the incident, and Sir Willoughby's defection in no way lowered his reputation in local opinion. His "incomparable letters home" kept his superior gifts before his social circle. At the end of three years he returns, more of the egoist than when he set out, more convinced of the superiority of his country, of his section of society, and, above all, of himself. Indeed, his country and his "set" are but extensions of himself. At his first meeting with Laetitia he seeks to resume the easy affectionate terms of their former relation, and does so with a touch of patronage. She is but part of the pleasant home setting. He settles down in the country house to live the life of the great country gentleman. He "loathed London as the burial-place of the individual man." His cousin Vernon is useful to him, both as a foil to throw up his brilliant parts and as an assistant in the management of the estates. Everything around him exists but as a part of his personality or as a background for that personality. If they do not further this they must be banished from his world.

So long as his servants and relatives minister to his selfhood, he is kind and considerate, even generous, but if they dare to leave his employment, to exert a personality which is other than an adjunct to his personality, then he is harsh and tyrannical. As the gentle aunts paraphrase it, "We know him ready to make any sacrifice: *only*, he does demand the whole heart in return." His treatment of Crossjay, the son of a poor relation, is a case in point. That the boy was a relative gave him no claim whatever. He is unwilling to share expenses with Vernon, who wishes to send his nephew

to a Navy coach, but he is willing to take the whole cost of his education and clothing, if he may bring him up as a dependent at the Hall according to his own views : " I cannot accept half the boy." As long as Crossjay amused him and returned his show of affection Willoughby played the benevolent patron, but when the boy crossed him by acting as messenger in the service of a distressed lady he turns him out of the house without a care as to where the boy can pass the night. Willoughby's treatment of a discharged coachman illustrates the same self-love which brooks no trifling with its authority : " If he goes, he goes for good. It is a vital principle of my authority to insist on that. A dead leaf might as reasonably demand to return to the tree. Once off, off for all eternity."

Even Sir Willoughby's interest in science and learning is not disinterested ; it is not science as such that he cares for, but science as something that distinguishes him from the neighbouring country gentlemen. The humanities, save as accomplishments, are meaningless to him ; with poetry he has no patience : " I detest artifice. Poetry is a profession."

The Egoist meets at a neighbouring house Clara Middleton, who has money, health, and beauty—a fitting mate. Sir Willoughby enlists the interest of her father, a scholar, and succeeds in extracting a promise of marriage from the lady by a " whirlwind wooing." She and her father are invited to become guests under his roof. In this way the Egoist hopes to establish a more complete ascendance. In the woman he loves he must find himself. She must be his, body and soul. In the idea of her as his he cannot even bear the thought that, as his widow, she might contract a second marriage. " Mine before all men, though I am gone :—true to my dust ? Tell me, give me that assurance." The rift between Sir Willoughby and a woman of as much intelligence and stout common sense as Clara is inevitable. The novel shows us how it develops. She sees herself and she sees him. She recognizes his own portrait in a humorous tale he tells : " Now there, Clara, there you have the Egoist." Clara is a woman under the influence of irreconcilable sentiments at this juncture : love of her father with consequential distaste for upsetting his

plans and his comfort; love of honour with consequential faithfulness to her plighted word; love of freedom with the craving to act up to her own ideals and standards and not to those of another. As a result of the lack of co-ordination of sentiments she is distracted, and her conduct up to a point is ineffective. Sir Willoughby, on the other hand, although his sentiment is many-sided, remains master of the situation. When the climax comes in Clara's attempt to run away, he is profoundly disturbed by suspicions that she has transferred her affections to someone else; but he is able to preserve the self seen by the social world. When the county busybodies, agog at rumours of the escapade, come to call, he manages them all superbly and sends them on their way, each believing what she wishes to believe, but without any evidence as to the real nature of the course of events. He himself is not yet certain what line of action is most consonant with his interests. His strongest emotion is self-pity. What has he done to merit such treatment. "Deceit was in the air." Once more he turns to his ever-faithful worshipper, Laetitia. To her he can paint himself as a pathetic yet heroic figure. "Deceit and sincerity cannot live together. . . . I do not forgive. All I say to the person is, go!" "To lose faith in womankind is terrible." "I must aim at the highest:—at that which in my blindness I took for the highest. You know the sportsman's instinct, Laetitia; he is not tempted by the stationary object. Such are we in youth, toying with happiness, leaving it, to aim at the dazzling and attractive." With such words did the Egoist secure himself a retreat, without, however, committing himself to Laetitia. Not until he learns that Clara in her desperate effort to be freed from her engagement, has made a confidant of his cousin Vernon and of the great lady of the neighbourhood, Lady Montstuart, can Sir Willoughby make up his mind to give her up. "But what if there might not be greater safety in holding tenaciously to Clara than in casting her off for Laetitia. No, she had done things to set his pride throbbing in the quick. . . . Clara must be given up." . . . "Consider him indulgently: the Egoist is the Son of Himself. He is likewise the Father. And the son loves the father, the father the son. . . . Yet it is most true

that the younger has the passions of youth: whereof will come division between them"; Clara was not only to be given up, but her hand should be bestowed on his old-fashioned semi-recluse widower cousin, Vernon. "And were it publicly known that she had been cast off, and had fallen on old Vernon for a refuge, and, part in spite, part in shame, part in desperation, part in a fit of good sense under the circumstances, espoused him, her beauty would not influence the world in its judgment." Thus reasoned the Egoist! The resolution to reclaim Laetitia once taken, all obstacles go down before it. He accepts Vernon's plans for the boy, Crossjay, reverses his verdict on the discharged servant, swallows home truths from Laetitia. The Laetitia who gives him her hand is no longer a blind worshipper, but one who sees him for what he is—one who worships himself. To his old devoted aunts she says: "Ladies, you are witnesses that there is no concealment, there has been no reserve, on my part. May heaven grant me kinder eyes than I have now. I would not have you change your opinion of him; only that you should see how I read him. For the rest, I vow to do my duty by him. Whatever is of worth in me is at his service. I am very tired. I feel I must yield or break. This is his wish and I submit." It is in this very moment of what may seem like the shipwreck of his pride that the master sentiment of the Egoist is at its greatest triumph. He is humbling his personal pride, subduing his personal ambition in order to satisfy a greater pride and greater ambition—the pride and ambition of the social-self. "By noon you are mine; you are introduced to Mrs. Montstuart as mine, as the lady of my life and house. And to the world!" "The world of his dread and unconscious worship wagged over Sir Willoughby Patterne and his change of brides, until the preparations for the festivities of the marriage flushed him in his country's eyes to something of the splendid glow he had worn on the great day of his majority."

EXERCISES

1. Give an illustration of a sentiment with the emotions and desires belonging thereto. Show how it influences an individual's thought organization and his scale of values. If unable to supply an original illustration study Othello's love for Desdemona as depicted by Shakespeare, or the sentiment of Mr. Perrin for Mr. Traill, or vice versa, in the novel of that name by H. Walpole.

2. "Every primary impulse, whether it is independent or belongs to a primary emotion, is innately connected with the systems of fear, anger, joy, and sorrow, in such a way that, when opposed, it tends to arouse anger; when satisfied, joy; when frustrated, sorrow; and when it anticipates frustration, fear" (Shand: "The Foundations of Character," p. 38). In the light of this "law" point out circumstances likely to give rise to love or to hate sentiments.

3. How far do our "first impressions" of persons depend upon our sentiments? E.g. we say, "I did not like her at all," or "I took to her the moment I saw her."

4. Use the passage from "Adam Bede," quoted in Exercise 3, Chapter II, to illustrate the relation, between sentiment and emotion.

CHAPTER XIV

CONDUCT AND CHARACTER

WE have seen that emotions and impulses come to be interrelated through their connexion with one object which can serve as the centre of an organization. Promotion of the well-being or ill-being of this object becomes the ground for varied emotions, impulses, and desires, and the influence of the organization on conduct is very great.

We noticed that joy and any pleasantly toned emotion in connexion with an object is favourable for the production of a "love" sentiment. The child comes to love the people in whose society he experiences joy, who further his interests and secure him pleasure. He comes, on the other hand, to hate those persons and things that constantly evoke in him anger, fear, and painful experiences. One further point we must notice is that the formation of sentiments is usually an uncontrolled development. It is often late before the individual realizes that he loves or hates a certain person, place, or thing. Each emotional value aroused by the object has left its effect, and helped to bring about an organization of emotions and impulses in relation to its well-being or ill-being. Suggestion (particularly in the form of imitation) and Tradition are obviously important in moulding sentiments. With the growth of self-consciousness and voluntary control the subject will acquire control in the formation of sentiments. The subject may try to place himself in situations that shall give to a certain object an emotional value, in order thereby to promote the formation of love. He may force himself to reflect on benefits conferred, or on the good qualities possessed, by the object in question. Similarly, he may strive to check the formation of a sentiment of hate. He may refuse to dwell on the situations that arouse jealousy or disgust or anger or fear. But, even so, it is not every one that can answer

Benedict's question: "For which of my bad parts didst thou first fall in love with me?" or even Beatrice's: "For which of my good parts did you first suffer love for me?" We come to love and hate blindly, and much lies hidden from our critical inspection of "Why?" So long, however, as there are found *any* grounds for the sentiments, and so long as their operation as forces in conduct is recognized by the self, sentiments should be differentiated from the "complexes" rooted in dissociated ideas, cf. p. 217.

DESIRE AND VOLUNTARY ACTION

We must now pass on to the consideration of "Deliberate" Action. We shall then see the influence of thoughts and sentiments on conduct.

Impulsive action found its driving power in the present situation; what was "given" set up striving in the individual and called forth the response (see Chapter V).

We saw in Chapter IX how with the development of ideas intentional action became possible. We saw that the individual could be moved to act by the value present to him in a free idea. He acts with intention in order to realize some end or aim. It is in such cases that we may properly speak of desire. There is the desire to bring about or to avoid a certain state of affairs. Let us take an illustration in order to set forth a formal analysis of desire.

The casual mention of the name of a sick friend may awaken in me the desire to relieve the tedium of her illness. (*a*) "To relieve the tedium," etc., is the aim or objective of desire, the motive of action. It is the idea which has value. (*b*) with this aim will arise what may be termed "the pain of shortcoming." There is a restlessness set up by the thought of the tedium of illness, there is the idea of a situation which needs to be altered, and the restlessness is unpleasant. The idea may be repressed with an effort of will governed by some counter-desire, or through some fixed maxim of conduct, such as, "Don't meddle in other people's affairs." Or, again, attention may be distracted at this moment and the desire excited by the thought of my sick friend may fade

away. Supposing, however, that neither of these possibilities happen, desire may lead on to an act of will. (*c*) Consequent on the pain of shortcoming and its attendant restlessness, ideas of means to relieve the situation occur. The tedium could be lightened by an interesting letter, by a gift of flowers. (*d*) The practicability of the means must be taken into account. This is the stage at which many of our projected deeds terminate their life-story. The way is too difficult, the game is not worth the candle; and thus, all too often, when the intention is good another paving stone is laid for hell. (*e*) If, however, the end still holds and we are moved by its value, there will come that last step in conation, identification of the self with the end. There is **volition**, the "fiat," "I will send her a box of roses," or "I will write to her to-night."

CONFLICT OF DESIRES

The organization of thought and the formation of sentiments carries with it the organization of volition. Our desires are not isolated sporadic phenomena, nor are our deeds single disconnected actions. Desires form what Professor Mackenzie[1] has so happily styled "universes," and our actions become more and more all-of-a-piece. In the adult man or woman we look for character and conduct, not merely for desires and actions.

To understand the influence of thought and sentiments on character and conduct we may begin by considering conflict of desires. When impulses conflict, behaviour may follow the drive of now this and now that, or may follow the stronger impulse alone. We may be driven by the sight of milk boiling up in a saucepan to snatch it off the fire, and at the same moment, because we see a baby playing with a knife, there is an impulse to pick up the baby. It may be that the impulse to pick up the baby will be the clear victor, or it may be that a dart will be made in the direction of the fire, rapidly changed into a dash for the baby. The *chassé croisé* which we perform with a fellow-wayfarer on the pavement in our endeavour to pass him is a good illustration of

[1] 'Manual of Ethics." Bk. I. Ch. 1.

conflicting impulses. Now we go left at the sight of his position, then we go right at the sight of his movement. He unfortunately does the same, until chance carries us past him or a genuine act of will keeps us stock still until he has moved forward. A conflict of desires is more complex than a conflict of impulses. It is resolved in different ways. Professor James has given us a striking classification of five chief types and we shall follow that classification here.

It should be noted these are types only. In life defining lines may not be so clear cut.

First, there is the *reasonable* type. In this the work of thought is very obvious. The conflict between desires is resolved through the effectiveness of some maxim or general principle of conduct which reflection has reached as the outcome of experience, or has accepted from the wisdom of the social environment. For instance, on the morning of a holiday I may read in my paper of a motor-car offered by a charity as a prize in a competition. The information may set up a desire to spend my spare time over the competition, and to stand a chance of the prize. But this conflicts with the desire to devote my day's holiday to golf. The conflict between the objects of these desires is resolved by an accepted principle of conduct which condemns " something for nothing," or the gaining of a reward out of proportion to work done or service given. Luck rather than merit will determine the " correct " prize sheet of answers. The desire to enter for the competition is not strong enough to stand against both the principle of conduct *and* the rival desire. There is no active struggle of choosing between rival courses. I go off to golf.

In the *second* type the conflict between rival desires is resolved by some external incident which gives a greater value to, or lessens the value of, one of the competing aims. Suppose the conflict to be between the desire to spend a holiday with some old friends and the desire to go to X. Which shall it be? Just when the conflict is becoming apparent the information is received that X is crowded with tourists and very noisy. This changes the balance ; a visit to X no longer attracts as before. The decision is taken to spend the holiday with the old friends.

In the *third* type there is no real decision between rival courses. An impulsive drive to action is set up by the very situation of being faced with alternatives. "Act and have done with it" is the inwardness of the situation. Whichever of the rival aims happens to be before the mind when this drive to action becomes imperative, that aim will be followed. There is no preference for course X rather than course Y, but X is in mind at the psychological moment, and X is followed. Such action is not truly a voluntary action, but a form of impulsive behaviour. "Shall I accept this invitation to dinner or shall I say I am too busy? Oh, bother! I must write something; I'll say I can't go."

In the *fourth* type we have a parallel to the second type—one of the competing values alters and so the rivalry ceases. Here, however, the change in value is not due to any external incident, but to a change in the mood of the individual himself. For instance, when a man is in the company of others a buoyant, confident attitude towards life might be inspired by their cheerful optimism. Two proposed careers might then appear equally attractive, although the one requires enterprise, resourcefulness, while the other demands patient steadfastness. The young man is attracted by both, and undecided in his choice. A few hours later, when the company has departed, memories of past failures depress his spirits, then the more adventurous of the two callings loses its attractiveness. The desire for it dies. The "it-is-not-for-me" mood rules it out of court and the other calling is adopted.

In no one of these four cases is there a real struggle between the competing desires. The conflict is resolved passively. There is nothing in the outcome which merits the title **"Choice."**

Deliberate Choice.—But in James' fifth type we have active resolution of conflict wherein *choice* follows after *deliberation.*

The ends, with the means necessary for their accomplishment, are carefully scrutinized. Each must be brought into relation with self. "Shall I do this, or shall I do that?" "Shall I go off and have the holiday which I have counted on for weeks, or shall I go and visit my old friend who is lonely, depressed, and in need of the help I could give?" The steps involved in each line of conduct are brought before the mind

in imagination and the consequences of action thought out. The evidence has been weighed, the competing values fully savoured. Finally, there is deliberate choice—not choice through mere impatience, as in type three, but choice on the evidence. The self identifies itself with one of the ends, "I *will* this."

In analysing Deliberation we must notice what mental equipment it implies. There must be control of ideas, power of concentrating attention, and of keeping back the impulse to act immediately. Such concentration of attention is not possible for children and often is not possible for untrained men and women.

Secondly, there must be power of thinking and using imagination in the service of thought. Again, this is impossible for children and untrained minds. It is useless to exhort the untrained young boy or girl to *think* what they are doing, when, strictly speaking, they have never made a sustained effort of thought in their whole lives. To think out what a given line of action will involve both in the means to its attainment and in its consequences, and to weigh these means and consequences against those involved in a different course of action entails hard thinking; errors in thought will involve errors in conduct. Often the blame which we cast on motives and feeling should more properly be cast on intellect. When you exhort the ill-trained boy or girl to reflect or deliberate, how does he or she carry out your advice? Perhaps there is an effort of imagination; two vivid pictures come up in turn. Say it is the question for a girl of domestic service or a factory; she may have a vision of a dull evening in a lonely kitchen, followed by a vision of being out, going to the cinema when she likes. Or if it is a question of a boy's future, he may have an imaginary picture of himself as a vanboy in the bustle of the streets, smoking as he rides about, and another picture of himself being ordered about as an apprentice. This is not "*thinking*." How can long views come to minds that are unpractised in steady thinking, to persons who have never used their leisure for reflection?

Thirdly, there must be some sort of conception of the "self" in order to control the identification of self with

this end rather than that. Here again the work of thought comes in as a necessary foundation for "choice," "willing." The self as known is only a part of the total self. The importance of self for *choice* is recognized by the doctrine of Self-determination. (*See* p. 244 for note on Conflict of Desires.)

FREE WILL AND DETERMINISM

What determines choice ultimately? A reference to the doctrine of Free Will is in place here, so far as this doctrine is a psychological one. The individual in choosing feels himself to be free, i.e. he always feels that he could have chosen otherwise than he did choose. He could have chosen X; he did actually, however, decide on Y. This sense of freedom seems essential for the conception of responsibility. If *he* did not *choose* X, how can a man be responsible for the merit or demerit of that course of action? In no case perhaps is this sense of freedom more striking than in the cases where the individual judges that he has chosen against the stronger motive. He feels that the weight of motive power lay with the course that he has rejected, and that it was he and his will which took the line chosen. There are questions of psychological importance here. In the first place we must notice that this feeling of having espoused the weaker motive is an experience which arises *after choice*. It arises, as Professor Stout points out, when the individual is face to face with, and is actually experiencing, all the difficulties of the course of action which he had chosen. These are here in reality, whereas the difficulties of the course not chosen tend to be forgotten, and in any case are only present in idea and not in reality. It may well seem, therefore, that the actual is the more difficult line of action. Further, the conditions which gave rise to the conquered desire persist. A case calling for special attention is that wherein the competition is between an *impulse* and a motive, and where the presence of the circumstances which call forth the impulse may continue to do so even after decision is made. Such circumstances make the execution of the action and perseverance in the chosen course very difficult. For example, a man may resolve to say "good-bye" to wife or sweetheart at the call

of duty, but the sight of wife or sweetheart arouses the impulse to stay in his home. Or, again, the resolve to play the man, when all the conditions which appeal to fear persist, has to withstand a constant strain of resistance. Such cases test strength of character.

In the second place, there is a common practice of speaking as if a man's will were something apart from his desires and the objects which arouse them. Will is treated by the phrase "Free Will," as if it were a separate power that came down into the arena of deliberation and quite arbitrarily espoused the cause of one or other of the conflicting desires. This is the doctrine known as Libertarianism. If this were really the case "Choice" would be a meaningless term. That which is supposed to choose, the free will, would do so without any regard to the strength of the motives or the past history of the individual or his principles. Choice would then be arbitrary. Free Will is often spoken of as if it were the ally of good; as if it strengthened the good motive in its struggle against a lower powerful impulse or motive. But Free Will, when it is used for something apart from motives and desires, is neither good nor bad: it is a chance force which would make it quite impossible for us to rely on a man's character or principles as the influences deciding his course of action. This view of Free Will is in essentials the doctrine of "unmotived choice," and finds few supporters at the present time.

In contradiction to this old "Libertarianism" the doctrine of "Determinism" arose. This had its supporters among men of science, who strove to find in human conduct the same law and order which characterized events in the realms of nature. Everything has a cause, nothing happens by chance or arbitrarily; hence whatever a man does is the outcome of causal conditions. Choice must be an orderly effect of which motives are the causal conditions; it must be the outcome of the strongest motive. Unfortunately, this school, of which the best representatives in this country were J. S. Mill and Jeremy Bentham, thought that the strength of motives, i.e. objects or aims of desire, could be measured in terms of pleasure and pain. "Nature has placed man under the empire of pleasure and pain. We owe to them all

our ideas, we refer to them all our judgments, and all the determinations of our life. He who pretends to withdraw himself from this subjection knows not what he says. His only object is to seek pleasure and to shun pain, even at the very instant that he rejects the greatest pleasures or embraces pains the most acute" (Bentham: "Principles of Morals and Legislation," Chapter I).

These writers taught what is known as "Psychological Hedonism," the doctrine that we never desire anything save pleasure or less pain. They regarded this as a psychological truth. Present-day psychology, however, rejects the teaching as unfaithful to fact. To obtain the fulfilment of any desire is *ipso facto* pleasant; e.g. I may desire to see the Venus of Milo; when I see it I shall be pleased, in so far as my desire is being fulfilled, but this is not the same thing as saying that what I desired was the pleasure of seeing the Venus of Milo. The late Professor Sidgwick[1] has pointed out that in most departments of desire we can distinguish between the desire for some end and the desire for the pleasure which something or other will bring us, i.e. *dis*interested and *in*-interested desires; e.g. the desire of the hungry man for food is a desire for food, while the desire of the epicure is for the pleasure of eating; the desire of the athletic is to play a game, the desire of the dilettante is the pleasure of playing; the desire of the charitable is to relieve suffering; the desire of the self-complaisant is to have the pleasure of being charitable. For the writers who held Psychological Hedonism all desires were desires for more pleasure or less pain, and on this basis it became possible to compare ends quantitatively. The doctrine that action followed the strongest motive thus came to mean that action would necessarily follow the line which promised most pleasure or least pain. If one could in the struggle of competing motives assess their relative pleasure and pain values one could foretell the outcome of deliberation. Choice would be a "determined" effect, comparable with any other effect in the natural world. Bentham laid down the marks which should be observed in weighing pleasure and pain values: we should

[1] "The Methods of Ethics." Bk. I. Ch. 4.

consider their Intensity, Duration, Certainty, Propinquity, Fecundity, Purity, Extent. These marks gave a Hedonistic Calculus by which we could measure the relative strength of desires. We shall refer to this point again in connexion with reward and punishment.

As against the doctrine of unmotived choice Determinism had much to commend it. At the present time both Libertarianism and Determinism have been superseded in favour by the doctrine of Self-Determinism.

SELF-DETERMINISM

This doctrine holds with Determinism that *Choice follows the strongest motive or the line of least resistance,* but it differs wholly from Determinism in its interpretation of the strength of motives.

The strength of a motive depends upon its relation to the "Self"; hence it is the "Self" which determines Choice. What this involves we must next consider.

(*a*) *The Concept of the Self and Personal Identity.*—In Chapter XI we saw how the knowledge of self developed, and in particular we noticed the quickening and rapid extension of that knowledge during adolescence and the large part played therein by the social environment. The self is known as an agent and as a patient, knowledge which is accentuated by the contrasting emotional attitude of mastery and subjection. Since these attitudes alternate most freely in a give-and-take social relationship, this is the relationship which favours a knowledge of the self. But in all social relations certain sides of the self are brought out and, if reflected on, become part of our self-knowledge. Sentiments profoundly influence our social relations and the aspect of the self brought out thereby. Both suggestion and contra-suggestion come into play. There are the persons who rub us up the wrong way; everything they do arouses a hostile attitude and works on us by contra-suggestion. If they admire an object we criticize it; if they are smooth tongued we become rough. Our best friends present at the encounter between self and such a person wonder what ails us and fail to

recognize the facet of self revealed. On the other hand, there are persons who call forth the best of self in response to their best. Sir Willoughby was conscious of this in his intercourse with Laetitia. "We do, it seems, bring one another out, reflecting, counter-reflecting" ("Egoist," p. 129). "With no woman on earth did he shine . . . as he did with Laetitia Dale" (*ibid.*, p. 134).

James says: "A man has as many selves as there are people who recognize him." This contains a large measure of truth, but nevertheless for the normal person there is a knowledge of unity. We possess our personality, and recognize that we are the same person despite our varying emotional attitudes and our changing response to our world. At the back of this knowledge of the unity of self, and most important in supporting it, is the sense evidence of sameness in the bodily self. Any great or sudden change in the visual appearance of the body or in the character of the habitual core of organic and kinæsthetic sensations has, temporarily at least, a shattering effect on our awareness of self-identity.

We may say on such occasions, "I hardly know myself, I feel so strange." Important also for the awareness of self-identity is the chain of memory. The more the chain of memory is an ordered coherent series, reviewable at will, the more assured is the knowledge of self-identity. Loss of memory has a disturbing effect on such knowledge. The memories that remain may be incoherent or even contradictory. A full knowledge of personal identity, a recognition of the unity of self, demands thought. The various aspects of self are brought together and an underlying sameness detected in the midst of differences. Common features can be found in the different sentiments. The self that loves animals is the same self that loves children. It is the same self that loves the garden. Its sameness is revealed in a conflict of interests; e.g. here is the favourite flower-bed, precious in its perfection, and here is the favourite flower-bed ruined by being the chosen bone burial-ground of the beloved dog. The clash of consequent emotions testifies to the sameness of the self behind the sentiments. Mental life can never be exhausted in terms of knowledge, and, even if it could,

there is much of mental life which though knowable in its nature is unknowable in fact. The roots of our sentiments may lie in incidents which were overlooked when they occurred and which cannot now be recalled in memory. Complex and Sentiment may become indistinguishable. Knowledge of the self can never be adequate to the facts constituting the self.

Failure to find connexions between different trains of ideas and different sentiments leads to dissociation of personality. In normal men and women dissociation does not reach such proportions as to lead to dual or multiple personality, but the beginnings of dissociation can be detected in most of us. The business man develops a business life with its own set of ideas, its own standards, its own social environment, its own peculiar emotional values. He has also a home life with its own set of ideas, standards of social environment, emotional values. If there were not many common ideas, standards, values, and common members of the social environment in the two lives the tendency to dissociation might become acute.

We have already pointed out the peculiar danger of dissociation in adolescence. If thought cannot find common principles underlying conduct in different settings, and reconcile primitive with acquired values, the consequent perplexities and conflicts may result in dissociation of aspects of the self. One of the most striking records of dissociation is that given by Dr. Morton Prince in his book "The Dissociation of a Personality." There he gives the story of a young American woman of good birth and college education whom he styles Miss Beauchamp. In one personality she was a woman of refinement, quiet in manner, delicate in health, well read and able to speak foreign languages. In another personality, styled "Sally," she was smart, rather vulgar, loud in her tastes, noisy in behaviour, illiterate, and vigorous in physical exercise. Under hypnosis other personalities were revealed, but these two personalities were the outstanding selves which dominated the waking life. As Miss Beauchamp, the young woman had no knowledge of her escapades as Sally. She only found herself faced with their consequences, pledged to social engagements she had no wish

to keep, possessed of clothes she had no inclination to wear. Sally remembered her line of life from one period of domination to another. She expressed great contempt for Miss Beauchamp and was jealous of her learning. She professed knowledge of Miss Beauchamp's experience during her other personality, and even claimed knowledge of her dreams, but she had no knowledge of episodes in Miss Beauchamp's past history, nor had she access to her organized ideas, e.g. her knowledge of languages. Dr. Morton Prince held the view that Miss Beauchamp was the true personality and Sally a dissociated fragment that usurped domination from time to time. Eventually, however, he learnt that neither represented the true personality of the self. Both were dissociated selves. He learnt, from evidence given under hypnosis, of occurrences during late adolescence which had occasioned a great nervous shock. When he was able to bring back to Miss Beauchamp's memory these incidents, with their emotional value, he was able to overcome the dissociation, and to unite into one self the sentiments and ideas which had led to the divergent tastes and standards of conduct. The true Miss Beauchamp was neither the very reserved, rather prudish young woman easily overcome by physical exertion, nor the dashing, ill-educated Sally, but a cheerful, intellectual woman with a sympathetic outlook, capable of cultivating social relations.

(*b*) *The concept of the Self and Universes of Desire.*—The doctrine of self-determinism claims that the strongest motive will determine choice, and, further, that the strength of motives is measured by their relation to the self. In deliberation we have a conflict of aspects of self. An object of desire or motive can rarely be regarded as an isolated phenomenon. The end projected by the individual is the outcome of some sentiment. It is by reason of our likes and dislikes, or, to put it more strongly, by reason of our loves and hatreds that certain ends make their appeal. Our desires form universes. There are desires arising from the bodily self, with its love of good food, creature comforts, its hatred of physical suffering, etc.; desires arising from the social self with its love of games, its love of this person and that, its hatred of loneliness

or of this or that person ; desires, again, from the intellectual self, with its love of books, curios, etc., its hatred of vulgarity or of stupidity ; so on. Each end presented in deliberation has behind it the strength of the sentiment to which it belongs and the aspect of self to which it appeals. In weighing the ends, the conception the thinker has of himself with the consequent ascendancy of one aspect of self over another, may become of vital importance. We said of Sir Willoughby that the moment of his seeming defeat was the moment of the greatest triumph of his Egoism. It was the greater value of self seen through the eyes of his social world over self known privately to Sir Willoughby Patterne that determined his final choice. It was better to eat a slice of humble pie in private than to appear before his world as the twice-jilted suitor. An official position may furnish an aspect of self from which a motive derives a strength which otherwise would be lacking. " As a member of such-and-such a body I must do this rather than that." Or it may be that the private and the official capacities of the individual come into the scales of deliberation. As a private individual I conceive of myself as doing this, but as an official I conceive of myself acting otherwise. Deliberation must discover which aspect of self carries more weight and establishes an ascendancy of motive at the moment.

In speaking of self-determination we must remember that there is a judging self as well as a self judged through the deliberation on means and ends. " Shall I go abroad or shall I stay in my present post ? " The judging self weighs an " I " abroad, with the attractions and drawbacks of this course, against an " I " at home, with the setting appropriate to that course of action ; but there is also the " I " who asks the question, who deliberates, and this " I " is not an abstract spectator. It may seek to be impartial, to be an intellectual judge, yet it is nevertheless the self of the moment—a self subject to emotions, to bias, and to prejudice in judgment. The deliberating self may be a resentful self, an envious self, and this character influences the value of the selves that are involved in the ends under consideration. An end appealing to my ambitious self may compare unfavourably with an end

appealing to my home-loving self if, when I deliberate, I am in a mood of tender pity.

Be the judging self what it may, the choice of ends made is the choice of the end which appeals most strongly at the moment, both the judge and the judged enter into self-determination. Being as we are, we choose as we must. We can only echo the cry of Guinevere :

> " It was my duty to have loved the highest ;
> It surely was my profit had I known :
> It would have been my pleasure had I seen :
> We needs must love the highest when we see it,
> Not Lancelot, nor another."

NOTE ON CONFLICT OF DESIRES

RATIONALIZATION, COMPENSATION, AND SUBSTITUTION

After action has been taken as the outcome of the strongest impulse or of the strongest desire, without any deliberation, there may ensue an attempt to justify the act on rational grounds. The person has acted from impulse or from strong desire but subsequently he gives out to himself or to others the reasons which might have influenced him to act as in fact he has acted. He may succeed in cheating himself and others into the belief that the action did indeed proceed from deliberate choice. Thus anger may cause a man to dash off a " hot " letter to a person who has annoyed him. Subsequently the writer justifies this action by finding grounds for it ; " Someone had to put the fellow in his place." " Serious consequences would have ensued unless such a matter were taken up." These reasons were not in the writer's mind when he wrote the letter, and they have no claim to figure as his motives. His action was the outcome of impulse, not of deliberate choice. Such belated finding of " motives " is termed *Rationalization*.

An impulse or a desire that has been worsed in conflict and which therefore does not issue in the action may find expression in some other direction. Angry words evoked by annoyance may be inhibited, perhaps by fear of punishment, but anger finds expression in some further situation which in itself is not provocative, an innocent question may be cut short by a sharp retort, or a door may be banged, a chair pushed violently out of the way. Again a desire to travel easily in a taxi may have been banned as " self-indulgence," but the urge for bodily comfort may find an outlet in an extra allowance of cigarettes or a larger expenditure on food or drink. This way of burking the issue reached through the conflict is termed *Compensation*.

The avoidance of a conflict by the substitution of " derived " values for those which actually conflict, was discussed on pp. 168–169. By identifying himself with someone else or by translating the situation with its given conditions into a situation in the world of romance, the individual may resolve his conflict temporarily. Whether such resolution will later lead on to an ability to face the actual conflict deliberately or lead only to a shrinking from the world of everyday life, will depend upon the degree to which the " derived " values can be brought into relation with given situation. This method of resolving conflicts is termed *Substitution*.

CHAPTER XV

CONDUCT AND CHARACTER (*con.*)

CHARACTER

THE doctrine of self-determinism teaches that behind conduct lies character. What does the word "character" denote? It stands for an organization of motives. We have already indicated that no single action constitutes conduct and no single motive constitutes character. Character stands for the hierarchy of motives as it has become established for any individual. It is part of the structure of mind. We may group motives according to the aspect of the self to which the end appeals, and thus regard the dominant aspect of self as the clue to character; or we may group motives according to the sentiment which gives rise to them, and treat the dominant sentiment as the index of character. Whichever method we follow we shall arrive at the same fact: an established hierarchy wherein groups of motives have their rank according to their prevalent sway over the individual whose character is in question. We may find for X that any appeal addressed to his bodily self is more influential in determining action than one addressed to his intellect. We may find for Y that love of power determines the relative value of various ends. For Z it is any appeal to his religious and mystical self which triumphs over all other motives. In such a hierarchy ends have an established value in relation to one another. This organization is the outcome of development and arises from all the influences at work on the human individual. It has its basis in native endowment, in tradition, in social environment, and it is shaped by the experiences attendant on impulsive action. We have said that every act of choice is self-determined, but it is also *self-determining*. It adds strength to, or it weakens, this or that influence. The aspect of self dwelt on in memory, in imagination, in thought,

reflection waxes large in relation to desire; similarly the sentiments foster desires and in turn are nourished by the fulfilment of these. A single generous act does not reveal a man as a consistent lover of another's interests; a single unjust act does not make an unjust man, but each single act may further or hinder a sentiment in the making, may emphasize or blur an aspect of the self.

We may go back to Aristotle for this view of character (Book III, V). If someone pleads that because a man is of such-and-such a character he cannot help acting in a given way, and thus is not responsible for his action; Aristotle replies, "Men are themselves the causes of having become such characters by living carelessly . . . because the particular acts of exercise form corresponding characters." He illustrates his point by reference to the ill effect of intemperate living. "The sick man cannot with a wish be well again . . . yet in a supposable case he is voluntarily ill, because he has produced his sickness by living intemperately and disregarding his physicians. There was a time, then, when he might have helped being ill, but now he has let himself go he cannot any longer; just as he who has let a stone out of his hand cannot recall it, and yet it rested with him to throw it, because the origination was in his power. Just so the unjust man, and he who has lost all self-control, might originally have helped being what they are" (Chase's translation). It is useful to take in this connexion another passage in which Aristotle discusses the formation of the fixed dispositions of acting in accordance with the principle of the mean, the virtues (Book II, IX): "We ought to take into consideration our own natural bias, which varies in each man's case, and will be ascertained from the pleasure and pain arising in us. Furthermore, we should force ourselves off in the contrary direction, because we shall find ourselves in the mean after we have removed ourselves far from the wrong side, exactly as men do in straightening bent timber" (Chase's translation).

Native endowment and social environment may give the bias, but they do not furnish the established organization we term character.

The conception of character as an organization enables us

to understand wherein lies strength and weakness of character. Strength or weakness of character depends upon the extent and the degree to which the sentiments or the aspects of self to which the desires relate are interconnected with one another, and are governed by fixed principles. The man whose character is weak through lack of interrelation between aspects of self or between sentiments may be an inconsistent man; e.g. he may love personal ease and at the same time may hate to see suffering in others, but he has never brought one of these sentiments into any relation of co-ordination or subordination with the other. It distresses him to have an ailing servant about his house, and so he gets rid of her, but it is too much trouble to find out what is the matter and what can be done for her relief. He is nevertheless a generous supporter of the local hospital and district nursing fund. Or again, a man may love fair play and honesty in all his financial transactions and yet be ready to take any unfair advantage of a rival in the path of professional advancement. Or again, the principles of uprightness which control a man's conduct in public life may be lacking altogether in his relations with his family. The aspects of self in the two spheres remain more or less out of touch with each other, a constant source of weakness.

A more obvious, and in a sense more disastrous, form of weakness is variability. Here there is a seeming hierarchy of motives, but the hierarchy prevailing to-day is changed to-morrow. This type of person is like a weathercock. The epithet "flighty" describes the change in relative values which is exhibited from one occasion to another. It is a form of instability which, if very pronounced, renders the individual abnormal. Those who are easily moved to enthusiasm, given to take up crazes, or who are highly suggestible, exhibit this changeability of standards. At one period everything will be sacrificed to a love of one particular person. This is the dominant sentiment by which all other sentiments receive their relative rating in value. Then something happens, and the whole scale of values is involved in disorder. After a little while some new ascendancy is established—devotion to art, to public life, or what

not. Inconstancy in the scale of values has been considered a weakness to which women are more prone than men. But if Pope wrote :

> " Nothing so true as what you once let fall
> Most women have no characters at all."

Shakespeare sang :

> " Sigh no more, ladies, sigh no more,
> Men were deceivers ever ;
> One foot in sea and one on shore,
> To one thing constant never."

Neither sex would seem to have the monopoly of changeability. It is necessary to distinguish variability from inconsistency, otherwise one would fail to understand how there can be striking individuality, although there is no strength of character. Strong, steady sentiments will lead to the former, but unless they are organized they will not yield the latter. Two historical characters who illustrate this contrast are Charles I and Napoleon. Charles I had strong sentiments yet was weak. He was attached to Strafford, but this sentiment was not co-ordinated with his desire for money, nor with his affections for his queen. He was a sincerely religious man in his personal thoughts and aspiration, but this sentiment did not touch his public dealings with Parliament and statesmen. Napoleon had one dominant sentiment : love of power. All things were subordinated to the extension of his power. Even his love of Josephine was subdued to the desire of establishing his power by founding a house.

TEMPERAMENT IN RELATION TO CHARACTER

Differences of temperament are not without their influence on differences of character. Of the four chief temperaments recognized by older writers, the first three found their basis in the kind of emotion to which the individual was most prone. The *choleric* man was the man who was easily moved to anger,

the *sanguine* man was prone to joy, while the *bilious* or *melancholic* temperament rendered its victim an easy prey to sorrow. Opposed to these three emotional temperaments was the fourth, the *phlegmatic*. The possessor of such a temperament was slow to be moved by the affective value of any situation. This difference of temperament, easily moved or not easily moved, is perhaps of greater importance than the other varieties. We will therefore follow James in recognizing two main types of will—the Explosive and the Obstructed type. The Explosive type feel the conative value of any situation. Impulsive rather than deliberate action is characteristic of such a man. He is no sooner affected by a value, whether given in terms of sense or in idea, than he is pushed forward to action. Children are by nature impulsive but there are many adults who remain all their lives of the Explosive type. For them it is extremely difficult to inhibit action in order to give time for deliberation. To weigh ends, consider means and consequences goes against the grain. Their resolution of a conflict of desires often follows James' third variety: "Forward now, though the Heavens fall." If the impulsive or emotional temperament is to yield a strong character, it is essential that the thought principles which are to govern conduct shall be of the most definite kind, and have behind them strong sentiments; otherwise the person will be carried forward on the waves of casual emotions towards aims of varying complexion. The dangers for the impulsive type are inconsistency and inconstancy.

The Obstructed type is slow to act. If this type of will is shown in childhood it is due to the apathy of a phlegmatic temperament. Values are not vividly experienced. There is little "urge" to action. In later life the obstruction may come from the control of ideas. The individual inhibits the impulsive urge of given situations. His ideas counteract sense-given values. Such a person will always experience a conflict of desires, always deliberate. For him prompt and swift decision is a difficulty. He hates to act until all the evidence is before him and is duly weighed. Such a type lends itself more readily to the formation of a strong character, since there is more play for thought and the consequent interrelation of

the aim of sentiments. Nevertheless, if present in an extreme form, the phlegmatic temperament leads to weakness. Deliberation becomes indecision, weighing of consequences leads to moral paralysis, an inability to face the difficulties of any course of action. When the inhibition is due to counter-ideas rather than to lack of sensibility to values the owner of the obstructed will may become a dreamer. The man carries out his projects in the world of imagination rather than in the world of action. There he is free from the conflicts and difficulties which he sees would beset him were he to enter on practical enterprises. Strong sentiments and fixed principles are as important for the Obstructed type as they are for the Explosive type. For the Explosive type their function is to control impulses and to give time for deliberation, but for the Obstructed type their function is to reinforce given values and to lead to prompt decision.

CONSCIENCE

However little the individual may have reflected on the ideals and standards of the society in which he has grown up, they will in some measure have become his. He probably never realizes the extent to which they have coloured his outlook until he finds himself in some environment where they are absent; e.g. an Englishman who finds himself isolated from people of his race and class in some outpost of civilization may be appalled at the beastiality of drink and immorality as he sees it in a low-class civilization, although he has been neither a temperate nor a clean-living man in his own country. This contrast may serve to heighten his consciousness of social standards or it may result in his gradually losing the backing of old traditions and environment and sinking down to the level of his new surroundings. Until it comes to some conflict one hardly realizes how deep-rooted for good or ill is the outlook on life fixed by environment and tradition in early days. This consciousness of standards due to environment may be called our social conscience. The expression stands for both an inarticulate judgment as to what is and what is not permissible and for the emotions consequential on following

or going against such judgment. An individual's private conscience employs this social conscience as the basis for the standards adopted or rejected by himself. When we speak of the voice of conscience we have in mind the judgment pronouncing on conduct with reference to some standard, when we speak of the pains or twinges of conscience we refer to the emotion consequent on trespassing against the standard. J. S. Mill in " Utilitarianism " defines conscience as a complex phenomenon involving associations " derived from sympathy, from love, and still more from fear ; from all forms of religious feeling ; from recollections of childhood and of all our past life ; from self-esteem, desire of the esteem of others, and occasionally even self-abasement." " Its binding force consists in the existence of a mass of feeling which must be broken through in order to do what violates our standard of right, and which, if we do nevertheless violate that standard, will probably have to be encountered afterwards in the form of remorse " (Chapter III).

In some men the standards and ideals of conduct have been made articulate by thought reflection. In others they remain an inarticulate mass, supplying in each case as it turns up a working rule of conduct, but furnishing no grounds or justification for the principle of action implied. If the social conscience is to be an enlightened conscience, and the basis for a high-toned private conscience, there is need for enlightened public opinion on all moral questions. Free discussion of moral value and moral standards is requisite, and in this the pulpit and the press has each its own office.

Aristotle tells us that the formation of a virtuous character is ascribed by some to nature, by others to custom, by others to teaching. A virtuous character by nature belongs only to those who are fortunate by reason of certain divine agency, and hence he dismisses it from further discussion. Custom and teaching are the business of the home and the State. He recognized that it was the function of the State to promote virtue both by its public system of training and by its legislation.

REWARD AND PUNISHMENT

Jeremy Bentham likewise regarded it as the task of the legislator to use the authority of law to move men to good and to deter them from evil. The legislator like the teacher can make use of reward and punishment as tools for his purpose. To Bentham, with his belief in pleasure and pain as the sole motives of action, the efficacy of reward and punishment in moral training seemed unlimited. We may therefore usefully consider what is the purpose of punishment :

(*a*) It may in relation to moral training be merely deterrent. To avoid the ill which punishment entails the individual will avoid the action to which the punishment is affixed. All the more " formal " types of punishment used by the State or by the teacher are of this kind. The forty shilling fine, or the imposition, are unpleasant consequences to be avoided, and so serve to deter the individual from some wrongdoing.

Rewards will encourage the individual to persist in certain right conduct or to adopt a certain line of conduct. We may cite as examples badges distributed for good conduct, prizes certificates.

(*b*) Punishment and reward may be regarded as the just consequences of bad and good conduct. This is known as the " retributive " theory. If you offend against the social conscience or your own private conscience you must pay the penalty. Punishment is thus the vindication of the law. Retribution is not to be confused with vengeance. Herbert Spencer, who advocated this theory of punishment very strongly, held that punishment should follow transgression as necessarily and as impersonally as effects follow causes in nature. Punishment therefore should never be arbitrary. Spencer would leave a child to bear the natural consequences of his actions. If he told a lie, no one should trust his word ; if he was greedy, he should suffer the consequences of over-eating. Punishment by natural consequences has the advantage of being necessary and impersonal, but in practice it is often impossible to permit natural consequences to ensue. No one can let a child drown as a consequence of his disobedience in playing near a pond, or burn as a consequence of

playing with fire. Nor, again, is it practicable to leave a thief at large to follow out his method of acquiring goods. Society rather than the thief will suffer from the natural consequences of his action.

(*c*) Lastly, the aim of punishment and reward may be to reform the individual. It may aim at creating in him a new standard of values and at destroying bad habits by changing environment. Both the State and the teacher use reward and punishment in this way. Long terms of imprisonment are designed to reform the criminal and not merely to deter him from crime. Borstal Institutions and Industrial Schools aim at re-educating the boy or girl by giving new values and establishing new habits. Rewards follow the same principle. They are not merely to encourage right conduct blindly, but to give an insight into the motives that lie behind it—unselfishness, courage, and the like. They should put the individual into a better relation with his environment and thereby increase his sense of self-respect. It may be claimed that the teacher should have no other end in view in punishment and reward than reform. It may even be said that for a teacher to use punishment as a deterrent is for him to fall short of his office. This, however, seems an erroneous opinion. The deterrent influence of punishment may work upon the individual's character by giving opportunity for deliberation where otherwise there would be impulse only. It may thus afford time for the social or private conscience to work. Taken alone deterrent punishments can effect no improvement either in society or in the individual, but combined with other educative influences they have their use. Bentham's sound common sense laid down the attributes which any punishment should possess if it is to be of value to society. It must be *equitable*; there must be proportion between punishment and crime. The same may be said of reward. Punishment must be *variable*. The first offender and the old hand must not be treated alike, even though their offence be the same. It must be *exemplary* and *popular*. The solemnities and ceremonies of the law courts give to legal punishment an exemplary character; the same may or may not be necessary with the punishment used by the teacher. In some circumstances the

exemplary character of punishment might add to its deterrent value but lessen the possibilities of reform. Punishment by a children's court is less exemplary than that given by the ordinary police court, but for that very reason it can more easily lead to reform. The boy or girl brought before it is neither contaminated by the associations of the larger court nor handicapped by its publicity. When Bentham demands that punishment should be "popular" he is claiming that it should have the weight of public opinion behind it. A punishment that has not public opinion behind it costs society more than it secures. If the real weight of public opinion does not condemn street betting, punishment of the offence does little good to society. Similarly, rewards which are not respected are better not bestowed. If honours are for sale, they will not encourage loyal service to the State. Reward and Punishment are but scaffolding for character building. Both the legislator and the teacher have to look elsewhere for material for the structure they wish to rear.

Their task is to "inform" the will, to impart knowledge and to communicate values. Only thus can they harmonize primitive and acquired values in accordance with the best traditions of the race and the highest ideals of great men.

"Let us hear the conclusion of the whole matter: Fear God, and keep His commandments, for this is the whole duty of man."

EXERCISES

1. What is meant by saying, "X is interested in so and so." Show how far a determination of the range of a person's interests may furnish a clue to character.

2. Give a psychological account of the mental processes which lead to an action which is called "impetuous." Bring out the contrast between such willing or volition and that which is termed "obstructed" or "over-cautious."

3. "Right doing implies right thinking." Discuss this statement.

4. What do you understand by "unstable" or "flighty" as a description of personality.

5. How are sentiments related to (*a*) individuality, (*b*) character? Give illustrations.

6. 'The superintendent of a home reports how he combated the 'Wanderlust' in a little raggamuffin, aged nine, who was brought to his institution for chronic truancy and consequent pilfering when hungry. He found that the child had a great love of animals and in particular desired to possess a dog. After he had run away more than once, because he 'just couldn't help it,' he pleaded for 'just one more chance. A dog wouldn't let me run away no more. Please let me have a dog.' He was told he would have to win the dog, whereupon he petitioned his supervisors and his teachers to 'please watch me all the time and don't let me run away till I get my dog.' He won the dog, and after one more outbreak, when both he and his dog, Jimmy, disappeared for a day, became a hopeful member of the institute. He was thereupon made a Big Brother, being put in charge of a new-comer of his own type. 'Think you and Jimmy can keep little Frank, the new boy, from running away all the time?' he was asked. With a glowing face he answered, 'Just you see! Me and Jimmy'll fix 'im.' His subsequent record is good. (Drucker and Hexter: "Children Astray," pp. 145–155.)

How do you think the reward (*a*) of the dog, (*b*) of the office of "Big Brother" influenced the character of this little runaway?

APPENDIX

THEORIES OF THE RELATION OF MIND AND BODY, TOGETHER WITH A REVIEW OF "BEHAVIOURISM"

IT is impossible to take up the study of mental life by the Objective Method without at once coming upon the problem of the relation of bodily to mental life. Man's behaviour, his speech, his work—these are the activities of his body; how do they reveal his mind?

The relation of body to mind is one of the oldest themes of speculation. As soon as men begin to reflect on their lives the question of link between the soul and the visible and tangible body arises.

The relation between the visible and tangible body and the soul is one of the oldest themes of philosophic speculation. The soul has been conceived as material, a ghostly copy of the body having its place with the tangible body, but capable of leaving it in dreams, in swoons, and at death. Present-day belief in ghosts retains some features of this old theory. Again, the soul has been identified with some one part of the body, e.g. with the blood or with the breath; from the latter comes our word "spirit." If not identified with some part of the body, the soul was regarded as having its seat in some specific organ. Thus Aristotle connected the soul with the heart. For Aristotle the soul and body made up one unity; the soul gave the various parts of the body coherence, made the body an organism instead of a mere collection of parts. The central position of the heart and its connexion with the blood fitted it to be the seat of such a unifying principle. Plato regarded the soul as distinct from the body. The body was the temporary prison house of the spirit, which was divine in origin, belonging to a supersensible world. By its temporary connexion with the body the soul occupied a half-way position between the world of reality and the world of sense, the world in which there is change and decay. Appetite and impulse testify to the influence of the body; the soul can only regain its freedom by discipline, subjecting the lower to the higher parts of its nature. Plato treated the brain as the organ most closely connected with the soul; the heart was the

seat of passion only, not of the higher functions of the soul. The supremacy of the Aristotelean philosophy throughout the Middle-Ages caused this suggestion as to the seat of the soul to be neglected.

The problem of the relation of mind and body is part of a wider philosophic problem, viz. the relation of matter and spirit. Are matter and spirit two irreducible ultimate forms of reality (Dualism), or is one of these dependent upon the other, matter on spirit, or spirit on matter (Monism)? Cutting across this problem comes another: is there an Absolute, a unity from which all existents are derived (Absolutism), or is there a plurality of independent beings or elements (Pluralism)?

In present-day psychology there are two outstanding theories of the relation of mind and body. These are Psycho-physical Parallelism and Interactionism. In their simpler forms both theories are dualistic. We may consider them in turn. The problem of mind and body centres round the connexion of events in the nervous system with the events in mental life. Psycho-physical Parallelism regards the events in the nervous system, and the events in mental life, which in time are attendant upon the former, as two independent series. Take for illustration the incident of seeing a bee and withdrawing the hand from its neighbourhood. We may describe the incident from the physical side or from the psychical side. Physically, light enters the eye, excites the optic nerve; this excitation is propagated to the brain. The event in the brain has its own sequel, nervous excitation in the sensory centres of vision is followed by nervous excitation in motor centres for the arm and hand. This in its turn is followed by excitation of motor nerves, muscular contraction, which in its turn brings about excitation of the sensory nerves in the hand and arm consequential on the movement in the same. On the psychical or mental side there have been certain visual experiences interpreted as "a bee by my hand." With this has come emotional disturbances prompting withdrawal of the hand and the sensory experience of this withdrawal. We may represent the two series of events thus:

Physical		Psychical
a	..	α
b	..	β
c	..	γ
d	..	δ

Psycho-physical Parallelism claims that these two series accompany one another; it claims further that whenever there is the event " a " on the physical side there will be the event α on the mental side; similarly whenever there is the psychical event α there will also be the physical event " a," and similarly for " b," " c," " d," β ,γ, δ.

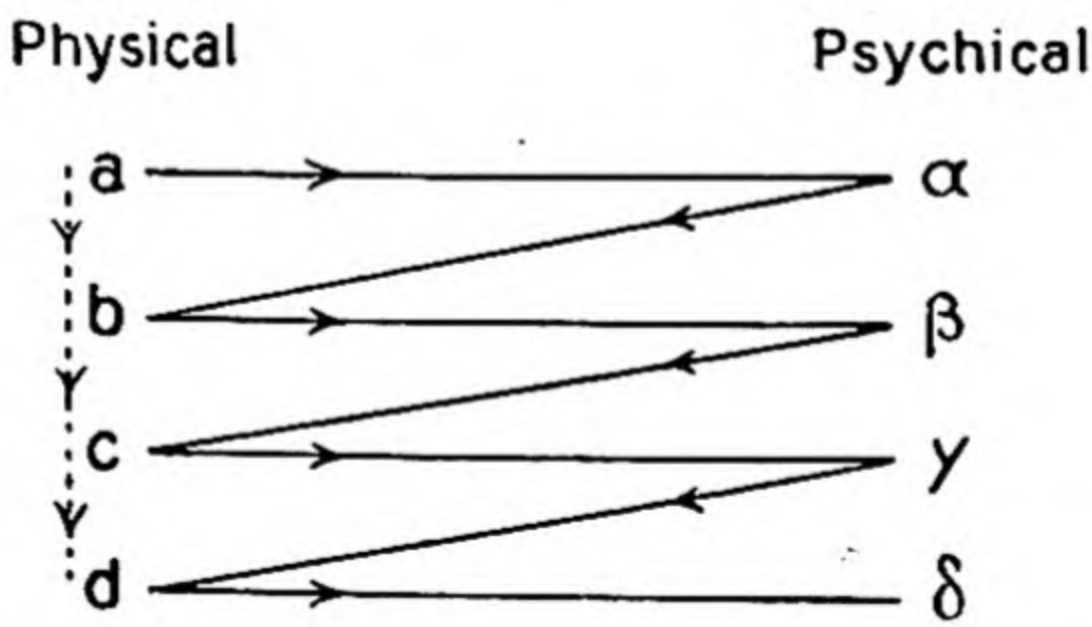
One asks, " Why ? " The theory in this form is rather a formulation of the problem than a solution of it. It merely claims (1) the mutual independence of the two series, and (2) their parallelism. Some supporters of the doctrine regard the parallelism of events in the nervous system with those in mental life as a special case of wider truth. They would claim a parallelism between organic life and mental life. Whenever there is organic life there is mental life and vice versa. Further, whenever there is physical change there is mental change. As the human body can be traced from the simplest organism, and that again from inorganic forms, so mental life should be traced back to the simplest origin. Such was the theory of Spencer and Haeckel. There is belief here in an Absolute, a unity which is the source of all existence. Again, others seek to solve the problem of parallelism by asserting that the two series of events are two aspects of *one* reality. Historically this doctrine is derived from Spinoza and is often termed the " double-aspect theory." In this form Psycho-physical Parallelism is no longer dualistic, but monistic.

Taking parallelism in its simplest form, a question arises as to the relation between the members of each of the two series which are claimed as parallel. On the physiological side science recognizes causal relations, necessary sequence. The light causes the change in the cells of the retina, and this in its turn excites the nerve fibres of the optic nerve; this necessarily sets up excitement in the visual centres in the brain, and so on. Is there a similar causal sequence in the mental series ? Does the sensation of colour *cause* the interpretation " a bee by my hand ? " Does this *cause* the emotion of fear ? The impulse of withdrawal, does this *cause* the experience of withdrawal ? Such language seems inappropriate for the sequence of mental events, and particularly so for the last members of the sequence. Many, therefore, would claim that causality holds only in the physical series. But even so, the parallelism between the two series will render the physical a menace to the psychical. How can the mental series, which must keep in step with the physical series marching forward by " necessary " connexions, have its own

progress directed by teleological factors? Does not parallelism require us to banish the concepts "end" and "value" from the field of psychological explanation? In other words, given the hypothesis of Psycho-physical Parallelism, must not the psychical be determined in precisely the same manner as the physical, whatever this manner may be?

The theory of Interaction recognizes the two series of events, but refuses to regard them as independent. Like Psycho-physical Parallelism it is in its simple form dualistic. It extends the conception of causation so as to admit a relation between the physical and the psychical. Events in the body are regarded as causing events in the mental life, and events in mental life as causing events in bodily life. At first sight this theory seems to satisfy the requirements of common sense and to be in accordance with common speech. To take our previous example, we should ordinarily say that light from the bee's body was the stimulus which caused the visual sensation and the awareness of a bee. Then we should go on to say that it was the fear which brought the impulse of withdrawal and occasioned the actual withdrawal of the hand. This movement in its turn would, as it took place, give rise to the consciousness of movement.

Using the symbols that we employed before, we could represent the incident thus:



"a" causes α, then α causes "b," which causes β and β causes "c," then "c" causes γ, which causes "d," and "d" causes δ. Now the great difficulty of this theory is that it conflicts with what is known about physical relations; in particular it conflicts with the doctrine of the conservation of energy. According to this doctrine the amount of energy within a physical system is constant. In any cause and effect relation there is a trans-

formation of energy from one form to another, but never any loss nor any addition. Whenever work is done the energy used up in one form will have its equivalent in some other form or forms. The motion of the locomotive is equivalent to the heat energy of the steam which has been transformed into kinetic energy. If we look at our incident of the bee more closely we shall see that the story told above is a difficult one to follow. Supposing we disregard the mental side entirely, then the series of events, " a," " b," " c," " d," as a physical series, will be events which, if taken broadly enough, represent causes and effects in the nervous system. As such they are transformations of energy, but transformations in which there is no loss and no gain in the total energy of the system. We may represent this by the dotted lines. If we introduce the psychical series, and say that α is the effect of " a," then we must either entirely disallow " b " as an effect of " a " or we must treat it as part of the total effect of " a." Again, if " c " is the effect of β, then we must either entirely disallow " b " as a cause of " c," or we must treat " c " as partly the effect of " b " and partly the effect of β. Each line of explanation has its own difficulties. If we accept complete interaction with the pendulum swinging now entirely in the psychical, now entirely in the physical, we must postulate an equivalence between cause and effect, between physical and mental energy. We cannot hope to measure one side of our equation, and, further, we must give up the belief that there is any causal relation in the sequence of either series taken separately. Thus, " a " is not the cause of " b," " b " is not the cause of " c," etc., and α is not the cause of β, β is not the cause of γ, etc. It is not easy to reconcile this account of the physical side with the findings of physiology. If we accept partial cause and effect relations between the two sides, treating " b," for instance, as partly the effect of " a " and partly the effect of α, then we have to face loss of energy and gain of energy within each system. For " b " is not the physical equivalent of " a," since part of the energy of " a " went to α; " c," on the other hand, is more than the equivalent of " b," since it is the effect of both " b " and β. If we claim that the two systems, physical and psychical, must be treated as a whole, we have to accept a transformation of energy which has no parallel in physical science. We have to give an interpretation to the word *energy* which seems to rob the word of its original meaning in science and in the very law to which the new interpretation of the relation between mind and body is supposed to conform.

Other defenders of the theory of Interaction boldly give up the doctrine of the conservation of energy. It is, they contend, a doctrine which is only applicable to physical science in the narrow interpretation of the term, physics and chemistry, and even there should be regarded as a convention rather than a law of nature. They point out that the law holds good only for the mechanical conception of causation, and has never been demonstrated in the processes of life; in a word, it is out of place in biological science.

To this it may be objected that, after all, the mechanical conception is the only conception of causation which gives determinism, and which entitles us to regard a sequence as "necessary," and that without such a relation between cause and effect the whole notion of "interaction" becomes meaningless. We are on the road to Huxley's "Epiphenomenalism." Huxley solved the mind-body problem by reducing the mental series to a mere by-product, an accompaniment of the physical series, but outside the chain of cause and effect. The bodily series was the only series to which science could direct attention. The mental processes were said to attend upon certain bodily processes, but to be without influence on them.

> "The consciousness of brutes would appear to be related to the mechanism of their body, simply as a collateral product of its working, and to be as completely without any power of modifying that working as the steam-whistle which accompanies the work of a locomotive engine is without influence on its machinery. . . . It is quite true that, to the best of my judgment, the argumentation which applies to brutes holds equally good of men" (Huxley: Essay "Automata").

A mental process was termed an "epiphenomenon"; it was something over and above the chain of events which the scientist studied as real. Such a solution of the mind-body problem cannot be called Interaction, but neither is it Psycho-physical Parallelism, since the mental series is dependent upon the physical for that epiphenomenal existence with which it is credited. The theory is termed "Epiphenomenalism," or it may be called the Automaton Theory, since it treats men and animals as machines whose behaviour is due to their nervous mechanism without any reference to their conscious experience. The theory is monistic and a form of materialism. To appreciate such a position one should consider how well one could explain mechanically the action of the sundew or flycatcher plant in gripping its prey,

Then try to apply the same light of explanation to the action of the anemone in sucking down the food which touches its tentacles. Then advance to the response of a roach to a worm, then to that of a mouse to cheese. Finally, allowing for the greatly complicated nervous system, the same line of treatment should be applied in explaining the behaviour of a child in stretching out its hand for a proffered orange.

Some psychologists at the present time are adopting a position akin to Epiphenomenalism, viz. the American school of Behaviourists referred to in the footnote, p. 2. These writers use the Objective method, but refuse to interpret the behaviour observed in terms of experience. As already stated, this school of psychology arose from the study of animal psychology where inferences concerning the character of mental processes are hazardous.

For the Behaviourist, psychology must be written in terms of stimulation and response. Under stimulation may be described the physical events in the environment and the physiological events within the organism. Under response, the physiological events within the organism and the consequential changes in the external environment, and possibly in some other organism. The Behaviourist does not concern himself with the mind and body problem, because, " as the stream of his science broadens and deepens such older concepts are sucked under, never to reappear " (Watson : " Is Thinking merely the Action of Language Mechanisms ? "—" Brit. Jour. of Psy.," Vol. XI, p. 94). An outline sketch of the leading features of this psychology may enable us to appreciate the weakness and the strength of this position.

The human or animal organism is endowed with native responses to certain stimuli—reflexes. These furnish the material for behaviour. The highly complex conduct of civilized man in modern society must be traced back to this repertory. Psychology must describe and explain how men and animals acquire the ability to attach a different response to an original stimulus and to make original responses to new stimuli. A change in the original reflex pattern is termed a " conditioned " reflex, and these conditioned reflexes are the only forms of learning. The conditioning of a reflex must rest wholly on change in the functioning of the nervous system, and this change must be determined by the character of the stimuli given or the manner in which they are given. No reference whatsoever must be made to the mental experience of the animal or human being responding to the situation. The favourite illustration of such " learning " is the

conditioning of the salivary response to food. The experiments were performed by the Russian physiologist Pavlov. A cannula inserted in the duct of the submaxilliary gland made it possible to measure the amount of saliva secreted by this salivary gland. The watering of the mouth is the native response to foodstuff acids in the mouth. Whenever this food situation was given a horn was blown in the adjoining room, and after several repetitions of the food + horn stimulus situation it was possible to obtain the native response to the horn stimulus alone. Whenever the horn was blown the salivary secretion took place; a substitute stimulus could produce the original reflex response. Such a reflex is said to be "conditioned." If the Behaviourist is right in his theory, repetition, combined with a correct temporal arrangement of stimuli, should be sufficient to establish a conditioned reflex and to enable the educator to attach any reflex response to any arbitrarily selected stimulus. The limits of learning will be fixed by the physical limitations of stimuli and the physiological limitations of the learner. Unless his account of conditioned reflexes is sound the Behaviourist cannot advance a step in his description of behaviour. He describes a hierarchy of conditioned reflexes deviating more and more from the original pattern as the human being is subjected to increasingly complicated situations.

Of all the patterns, or habits, as the Behaviourist terms them, that man builds out of his original repertory the most interesting are the language habits. He starts with the native vocal responses made to intra-organic stimuli, e.g. cries of hunger, coos of, shall we say, physical well-being. According to Professor Watson, one of the foremost of the American school, these become language when they are substitute responses used in definite situations. They are substitutes for arm, leg, and trunk responses—responses which, for convenience of nomenclature, he terms collectively "manual." Professor Watson gives the following account of the arbitrary conditioning of a vocal response in a baby:

> "He was born November 21st, 1921. Up to the end of the fifth month he showed merely the repertoire of almost every other child of that age. The cooing sounds, 'ah goo' and variation of 'a' and 'ah' were pronounced. We began on the 12th of May to tie this sound up to the bottle (this infant was bottle-fed from the end of the second month). Our method was as follows: We gave him the bottle and allowed him to nurse for a moment, then we took it away and held it

in front of him. He began to kick and squirm and reach for it. We next gave the stimulus sound 'da' aloud. We repeated this procedure once per day for three weeks. When he began to whimper and whine we always gave him the bottle. On June 5th, 1922, he said the word 'dada' when we gave the stimulus word and held the bottle in front of him. The bottle was immediately given him. This procedure was repeated three times with success on that occasion—each time we gave the stimulus word. Then we took the bottle away five successive times and without our giving the stimulus word he said 'dada' for the bottle. At one of the trials he kept on saying 'dada' several times without our giving the stimulus word. Thereafter for several weeks it was as easy to touch off this response as to call out any other bodily reflex. After conditioned word responses have become partly established, phrase and sentence habits begin to form. Naturally single word conditioning does not stop. All types of word, phrase and sentence habits thus develop simultaneously" (Watson: "Behaviourism," pp. 182, 183).

Through conditioning of reflexes a number of situations will touch off the same response. We may call the response to these situations the "meaning" of the word in question. Thus, as in the instance cited by Professor Watson, the word "mama" is called forth by the sight of the mother, the photograph of the mother, by the sound of her voice, the sound of her footstep, by the sight of the printed word "mother," by the sight of the French word "mère," etc. Language is thus accounted for as a collection of speech habits built up under the pressure of society on a uniform pattern. The Behaviourist, then, believes himself to be in a position to describe the processes which the orthodox psychologist terms thinking and remembering. Nay, he can even account for introspection. Thinking is "subvocal" word behaviour. When a man thinks in response to a situation he is responding by subvocal word habits. The response is fundamentally the same as when he says aloud "mama" at the sight of his mother. Further since "manual" and visceral responses have been carried out side by side with vocal responses, these too may be regarded as part of thinking. In some cases a mere sketch of the "manual" response together with the visceral response may occur without the subvocal. This happens when a man is said to think without words. Much of our so-called memory is for the Behaviourist the arousal of verbal habits

Thus, when the verbal habits formed in response to persons, e.g. their names, comments made by them and about them, are re-aroused by their appearance, we are said to remember them. The importance of language is so great in our social organization that substitute verbal responses are introduced wherever possible. Man accompanies his "manual" responses by their verbal substitutes, he verbalizes every response he can, then these substitutes can be used when the "manual" response is out of court.

> "Watch the golfer as he makes a bad shot; ask him what he did wrong. If you are a lip reader you can in many cases read his words without asking him any questions. 'I stood too close to the ball. I've got to learn to stand back. I bent my legs; I didn't follow through.' Watch him address the ball for his next shot. He says to himself, 'Stand back little,' and he stands back, etc. The verbal organization . . . is on the field an intimate part of the total organization called into action when learning to play golf. . . . But the situation for touching off your verbal organization on golf occurs a thousand times more frequently than does the actual situation touching off your organization for playing golf" (Watson: *ibid.*, p. 205).

It is this verbalization of responses that is recalled in memory and it is this same verbalization which the orthodox psychologist falsely interprets as introspection.

Criticism of the Behaviourist treatment of facts may here be confined to his treatment of learning. To begin with his unit, the conditioned reflex. He leaves the explanation of the conditioned reflex to the physiologist. To overthrow the orthodox psychologist's reference to experience, sensation, feeling tone striving, conditioned reflexes should be established in circumstances which rule out from the stimuli attributes to which value or any elemental meaning could be attached. In other words, conditioned reflexes should be established in circumstances where there is reasonable evidence of the complete absence of what the psychologist calls consciousness. Where it is not the case, and it certainly is not the case in the instances cited in textbooks on Behaviouristic psychology, the orthodox psychologist may be pardoned for believing that the experiencing of the sensations and of their feeling tone may play an important part in building

up a conditioned reflex.[1] But given this unit of acquirement it is necessary for the Behaviourist to lay bare the steps of habit formation in terms of the unit. Professor Watson admits that this is difficult. The learning processes which the older psychologists have termed "learning by trial and error" show the elimination of certain responses and the retention of others. This requires explanation. The Behaviourist can only plead in explanation the temporal characteristics of responses, viz. recency and frequency. The right response will be the last one in any trial that succeeds, and it becomes fixed by repetition. This line of explanation seems miserably inadequate in dealing with the records of any actual learning. The orthodox psychologist may well hesitate before he throws overboard as useless lumber, his explanation in terms of the emotional and instinctive value of situations and in the significance of these situations for the learner.

Peculiarly difficult is the Behaviourist's account of constructive thinking. It is obvious that much which the Behaviourist styles thinking will not be so termed by the orthodox psychologist. Many subvocal responses are mechanical, e.g. the recitation of nursery rhymes and lists of names learnt by heart. We may confine ourselves to the thinking which would be so termed by both the old and the new school, the thinking that occurs when we are placed in a new situation. The Behaviourist, unlike the old psychologist, treats all problem solving as learning by trial and error. The human being brings all his previously acquired responses to bear, but the stimulus still persists and excites him to continued activity. Finally, some combination of responses adjusts the animal to the situation and the stimulus ceases, the problem is solved.

> "Let me say once again for emphasis that the most interesting point in this kind of thinking is the fact that after such new thinking situations have been met or solved once, we usually do not have to face them again exactly in the same form, *only the first trial of the learning process takes place*. . . . In real life we go from one difficult situation to another, but

[1] A conditioned reflex cannot be established if the conditioned stimulus be given after the original stimulus. This fact is readily intelligible if we regard a conditioned reflex as "learned." An "x" interpolated between situation "a" and its response "b" is merely an interruption, but "x" which leads up to "a" or is linked with "a" can come to stand for "a" and to function in its stead. It is also noteworthy that a conditioned reflex cannot be established when the cortex has been extirpated or extensively injured.

each situation is a little different from all the others (except where we are acquiring definite functions like typewriting or other acts of skill)" (Watson : *ibid.*, p. 197).

This is indeed an interesting fact, but what does the Behaviourist make of it ? Even supposing that the first solution of all problems were the outcome of laborious trial and error, aided here and there by a lucky short-cut, why does the solution of one new situation aid us in the solving of another which resembles the first ? It is of the very essence of a thinking solution that it should be capable of being applied to other situations which though different from the first yet have a likeness to it. It is, on the other hand, characteristic of unintelligent behaviour to fail to respond adequately to a new situation by the modification of an old response. Will the possession of subvocal habits explain this application of thought solutions to like situations ? The Behaviourist will have nought to do with general ideas or concepts. All our responses are to particular situations. A verbal response is a substitute response which has been conditioned for this and that situation, and its meaning as a response thereby enlarged piecemeal ; for example, the meaning of " mama " already referred to. The meaning at any particular time is the collection of past responses. It cannot be extended without being conditioned anew. It is difficult to understand how a thinking response which has been learnt in one situation could be modified and applied *directly* to a different situation without a preliminary stage of trial and error. Yet life would seem to afford abundant instances of such intelligent learning. To take an example: yesterday a boy has thought out the response to the problem, " If I go to shop with six pennies and spend two-thirds of this amount what shall I bring home ? " To-day he is met by the problem, " What will be my share of fifteen shillings if each of us three boys has an equal share ? The response made to yesterday's problem will enable a thinking boy to respond directly to to-day's problem without preliminary trial and error (unless, indeed, the Behaviourist will so mislabel the fitting of a minor premise to a major). Can meaning built up by a hierarchy of conditioned reflexes explain such response ? It is difficult to see how it can. The line of response does not rest on any common element present in the subvocal word habits. Nor can the likeness between the two situations be reduced to a likeness in the verbal elements of each. How, then, has the meaning of the first response led to the second ? His behaviour would seem

to show that the thinker did not respond to a particular definite situation, nor to any one bit of it considered as an integral part, but to the features it possessed when compared with the previously mastered problem. Thinking points in such a case to something very like abstract ideas, for it seems to demand the ability to recognize relations, likenesses, and differences in this and that respect. But if so, we have reached a feature which falls outside the stimulus situation which may possess these relations, and outside the subvocal habit which may *express* their recognition, but which can never constitute their discovery. In other words intelligent behaviour seems to point to features which the Behaviourist omits in his description, viz. to mental processes.

To sum up, we criticize Behaviourism first as failing to account for the features present in learning by trial and error; secondly, as failing to account for intelligent learning. Conditioned reflexes are inadequate for the first task and subvocal habits are incapable of accomplishing the second. None the less Behaviourism has done, and is doing, good service by concentrating attention on the Objective method and by bringing into prominence the importance of careful study of infant behaviour. It breaks down as a system of psychology and is no more successful in shelving the problem of mind and body than was its precursor, epiphenomenalism.

Whether we incline towards the solution suggested by Psycho-physical Parallelism or towards Interactionism may be a matter of personal taste. Neither theory can satisfy the reason. This at least we may affirm: the physiologist and the psychologist require each to know all that can be learnt of both the bodily and the mental events. Sometimes one side of the story is better known than the other, and then any clue will be followed which this side may suggest as to the nature of the events which are unknown. Both physiologist and psychologist are unwilling to accept facts which do not fit in with the rest of the story, and they recognize that the whole story includes both the physical and the mental; e.g. we may meet the case of a man suffering from shell-shock and unable to speak. Structurally, his organs for speech are perfect, and he may perhaps be heard to speak when asleep. He is said to be suffering from some inhibition. He is hypnotized and after suggestion recovers the use of his speech. If we are Interactionists we shall regard the change in mental condition, due to suggestion, as the direct cause of the recovery of speech, but if we are psycho-physical parallelists we shall believe that to the suggestion and the changed mental

condition there corresponded changed physical conditions, and that these were the direct cause of recovery. But in either case we may use whatever clues we can find in the episode to piece out the complete story both from the mental and from the physiological side.

It is perhaps hardly necessary to point out that the problem of the relation of body and mind is entangled with that other problem whose solution we saw was still to seek, viz. the problem of psychological heredity. We cannot hope to answer the question, "What is the relation between the life story of any person and those of his progenitors?" apart from the more general question, "What is the relation of body and mind?" If we believe that mind and body form one reality, then logically we must believe in some form of psychological inheritance. If, on the other hand, we regard mind and body as forms of two fundamentally different realities, then we are not logically bound to believe that a person inherits mental determinants from his progenitors, though it will still be open to us to believe this as an empirically ascertained fact.

BOOKS RECOMMENDED FOR FURTHER STUDY.

GENERAL PSYCHOLOGY.

STOUT : " Manual of Psychology." Clive & Co.
JAMES : " Textbook of Psychology." Macmillan.
WOODWORTH : " Dynamic Psychology." Columbia University Press.
COLLINS and DREVER : " Experimental Psychology." Methuen.

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SHAND : " Foundations of Character." Macmillan.
McDOUGALL : " Social Psychology." Methuen.
" The Group Mind." Cambridge University Press.
DREVER : " Instinct." Cambridge University Press.
BURT : " The Young Delinquent." London University Press.
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PSYCHOLOGY OF RELIGION.

JAMES : " Varieties of Religious Experience." Longmans Green.
THOULESS : " Introduction to the Psychology of Religion." Cambridge University Press.

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RIVERS : " Instinct and the Unconscious." Cambridge University Press.
FREUD : " Psycho-pathology of Everyday Life." Allen & Unwin.
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